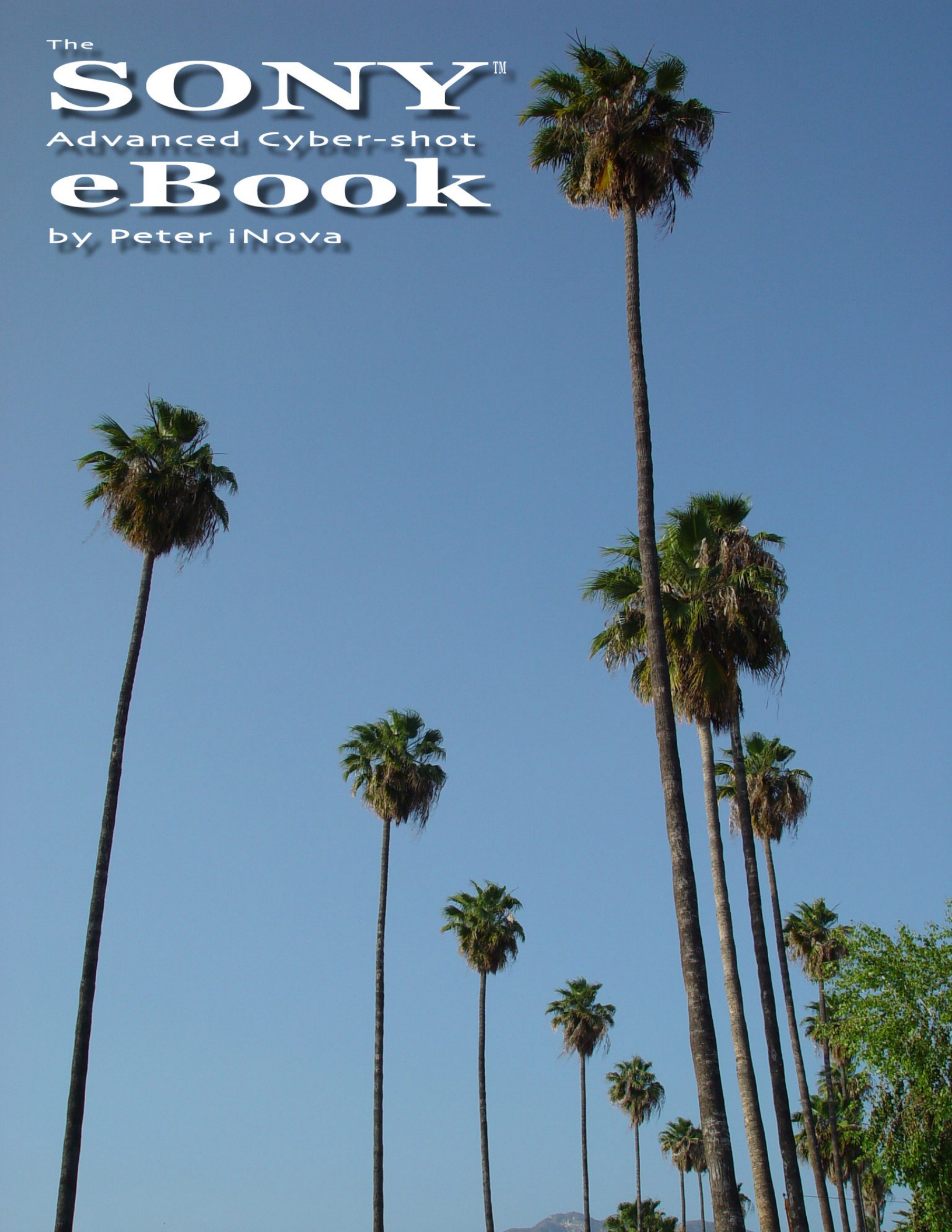
The
SONY™
Advanced Cyber-shot
eBook
by Peter iNova

iNova, Peter, 1944–
The Sony Advanced Cyber-shot eBook
By Peter iNova
Includes CD with software programs for image manipulation, demonstration, and eBook display for both Macintosh and Windows computer platforms.

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Published in the USA

FOREWORD/FORWARD

Why this eBook?

In 1999 I wrote a book on digital photography about a specific camera, the Nikon Coolpix 950. Why? Because I wanted a book that was a match to the depth and quality of the camera, and the world wasn't offering me a satisfactory option. If it wasn't an option for me, it wasn't an option for anybody else, either. Bell that cat!

I've taught a lot of photographers over the years, but not in a classroom format. Mostly by being at their elbows where the conversation is free and the chance for wit, quips and spur of the moment ironic observations is high. So I wrote a book standing at the elbow of you, the reader. Then showed it around.

Publishers weren't interested. The project didn't fit their understandings which see books of this sort as being rather like a manual with black and white images only.

Excuse me? This camera is all color all the time.

I was equally not interested in fitting the vision of my project to theirs. Impasse.

This is the i-age, the e-age and the world that surfs the Internet. Digital photographers as a group must have computers to complete their images, print them and distribute them.

As conceived, the book would include software for digital camera owners and a web site to carry the reader into new ideas as they appeared. It was less about paper pages and more about information and how to do in the computer what had previously been done with wetness and chemistry.

So the eBook concept was formed. It wasn't paper pages with four-color printing, but it had features no paper book could contain.

Interactivity, for instance.

Immediate access to the CD full of software, demos, and files of examples, for instance.

Plus a feature I had not anticipated earlier; big, sharp, clear color photos—sharper than anything you have seen from an electronic publication and more detailed than you can experience mechanically reproduced on paper.

It is also came to market from a more progressive publishing source, Graphics Management Press, who have embraced new technologies where the larger publishers fear to tread. (Their design and production of the 1991 book, *Witness to War: Images of the Persian Gulf War*, garnered a Pulitzer Prize for their client, *The Los Angles Times*.)

The book went on to become an industry-leading Best Seller. With around 15,000 copies (currently) and four version updates to include new Coolpix models, it has broken just about all the records for an eBook of any kind.

The reviews have been encouraging to say the least. And photographers who use Canon, Kodak, Fuji and Olympus cameras have all asked me to do the same for their favorite cameras.

Life is short, time is precious and outstanding cameras are rare. In 2001 I bought a Sony Cyber-shot that looked promising. Little did I suspect...

This eBook orbits about the milestone Sony DSC-F707/717 cameras which are the best still cameras Sony has produced and the finest digital cameras one can hope to work with to date. These cameras combine such a well-coordinated series of features and abilities that they deserved to have their many secrets revealed.

The eBook is not a manual, exactly, but it digs into the secrets that lie behind each feature, knob, button and menu item that have hidden meanings. Secrets that can help you make better images while making your images better. Other books exist to give you the "improved manual" experience.

If I've done my job here, you will be taking better pictures, and you will know *why* they are better. You'll be printing, correcting, improving, and finessing your shots through a greater experience base, and you will be enjoying Photoshop instead of thinking it's just too hard to learn. That camera in your hand is a fabulous instrument that beckons you to create images. It has a lot to teach you and you have a lot to teach it.

Bon aperture...

-Peter iNova, September, 2002

GETTING THE MOST FROM THIS EBOOK

This eBook is a text, a number of computer elements on CD, and an extended experience on the Internet.

ACROBAT VIEWING

Three main file types are here in two folders marked High Res and Ultra Res. Each contains individual chapter files and clicking on any of them will start up Acrobat for viewing. In the High Res folder one large file contains all chapters in a continuous string. The text in each is identical, but the Ultra Res chapter files have greater image detail.

As you read these pages in Adobe Acrobat™, the page is taller than your screen, most likely, and the distance from your eyes to the screen is greater than your normal book-reading distance. In order to adjust for that, the page image will likely feel best to you at 125% or 150% scale, as set by Acrobat in the lower left corner of the display. With the page at 140% magnification, it works well on a 14- or 15-inch screen such as is found on many portable computers. You can have Acrobat optionally show you one page at a time, or pages laid out like an open book, or as pages following one another in a continuous scroll.

THUMBNAIL BROWSING

The thumbnails running down the left side of the Acrobat Reader page work well as a quick browser. They give you a chance to scan the chapter or complete eBook pages fairly quickly and spot any page that looks familiar. Any page you can see is accessible by simply clicking on it. Immediately the new page will appear at viewing size. The header bar has a control to turn the thumbnail images on and off to conserve screen space, if you wish.

INTERACTIVITY

You will find a certain level of Acrobat interactivity in some places. Generally, clicking on any color-identified text will jump to a referenced topic if an interactive link is in place. Click on a chapter in the Table of Contents and the chapter will immediately appear. In the text, a citing of another chapter's information on the subject will also link to it.

Note that the Acrobat reader behaves much like an Internet browser and the solid arrow triangles in the header will navigate forward and backward through a string of interactive jumps.

Individual chapters link to prior and following pages even when those pages are in a different chapter file. Click on the bottom of the last page to jump to the top of the next chapter's first page, and click on the top of the first page to jump backwards to the last page of the previous chapter. About 20% of the page is activated.

ZOOMING IN

Most of the images in this book are made from full-size files from the DSC-F707. Some images have been made on other digital cameras where image qualities or specific features of the 707/717 aren't at issue. All can be seen in closer detail. In general, you can zoom into them with as much as a 200% magnification without seeing pixels. Some images can be viewed *even closer* in the Ultra-Resolution chapter files. Ultra Resolution files are designed to withstand a 400% enlargement on your monitor without breaking into discrete pixels. Not all images will do this. The High-Resolution files are faster to move through, simply because the images contain less data.

If you are inspecting images closely, the selection box on the thumbnail image will show you the portion of the page you are currently viewing. Clicking the cursor on any other image in the stream of thumbnails will jump to it instantly while maintaining the current magnification. This makes it easy to compare similar-sized images and peer into their details unusually quickly. Without printing dots to break up the pixel structure, the details stay more photographic.

PRINTING OUT

You can print out ranges of pages from this book in black and white, as with a laser printer, or in color, as with an ink-jet printer, any time you wish for reference. The color charts and test images are on the CD for easy access and may be printed out, too.

INOVAFX ACTIONS

Included on the CD are the Photoshop Actions under the iNovaFX brand. These are 100% original procedures, manipulations, and helpful orchestrations of Photoshop's myriad features, all of which are specifically designed to achieve three things:

1. Correction, perfection, and performance enhancement of Sony DSC-F707/717 images.
2. Demonstration of, and experience with, the rich Photoshop Menu of Plug-in Filters.
3. Artistic, impressionistic, and graphic interpretation of your photographs in original ways.

Included in the first group are the iBC barrel distortion Actions, the iCrAb chromatic aberration reduction Actions, the iCC color-repair Actions, the B&W film-look Actions, the JPEG artifact-suppressing Action, the ISO-boosting Actions, the iFF denoise Actions, and several others. They're all created to work particularly well with the images from these cameras. Some, like the iBC and iCC Actions are tuned so specifically to these particular cameras and their individual optical systems, that using the Actions on the images from other cameras will not give ideal results. New Actions have joined the collection with this eBook version. Some last-minute instructions may be found in the ReadMe documents.

INTERNET UPDATES

It is inevitable. Data in a timely document like this may give way to new information, become obsolete, or acquire new meanings as technology progresses. After reading through this eBook you may wish to visit our special site holding updated information, links, special offers, new techniques, and the latest information about these cameras.

http://www.itssony.com
http://www.digitalsecrets.net

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A NOTE TO FILM PHOTOGRAPHERS

Darn it.

Just about the time you got real comfortable with Velvia and Plus-X, somebody came along and connected a battery to the film! What *were* they thinking?

Not to worry, film isn't dead. But it may be time for you to start thinking about digital image capture and this Sony camera may be just the thing for you to use to get your digital feet wet.

A growing number of your contemporaries, and probably even you, too, have embraced a large part of the digital photographic revolution. Slide and negative scanners, ink-jet printers, Photoshop manipulation, CD-R storage—these have all become natural parts of the contemporary film photographer's world. It's gotten so digitally thick these days, that customers and clients are beginning to feel cheated if there isn't that D-word associated with the current project.

How much of a jump could it be to digital acquisition? Well, in the case of the cameras about which this eBook is concerned, the price of admission starts under a thousand dollars, US. The price of accessories will add half-again as much to the bottom line, but by starting with a Sony DSC-F707/717 you will have bought into a multi-optic, unusually configured, highly versatile system that brings new opportunities and experiences.

Yes, the film is free, but when did the cost of film ever stop you? The big deal here is Time. Instant results. Not Polaroid's minute or film's hour: Now! And with a TV hooked to your camera, the whole agency can watch the shot coming together on the big screen (and won't that be fun). But seriously, you can use a Sony 707/717 as the world's most sophisticated light meter, if you calibrate it to the film you are using. With controls in these cameras that let you adjust contrast, color temperature, ISO, and all the normal numbers of shutter speed and f-stop, you can have a light meter that tells you how to set other equipment or shows you unambiguously how your lighting is performing.

A light meter that takes pictures, now that's a new one.

In this eBook, you will see images that are obviously studio shots and many that are captured in the field with existing lighting or little extra lighting. That little flash on the camera is a good flash-fill for outdoor images, but that's about it. The twist-design of these cameras will seem odd at first, but will grow on you. It has saved my fanny hundreds of times but has never prevented me from getting a shot. You're going to love the fact that the film cartridge holds not just a few more than the 36 exposures you've been using—it holds HUNDREDS of shots, if you let it.

In all, the jump into digital is a personal journey that will provoke a whole lot of questions. Questions that you can answer yourself by playing with the camera and trying new ideas. As has happened to more than one film photographer, the experience could be a turning point in your career.

Good shooting.

ACKNOWLEDGEMENTS

An eBook like this is the product of many hands, many hours, many re-thoughts, and many mistakes. I speak with typographical errors, sometimes, so it comes as no great surprise to me that I write that way.

Among the many hands are the ones of the models and actors who participated in the photos throughout these pages. Thanks go to actors Molly Kiley (right), Austin Vulich, Ellen Heuer, and models Lisa Dennis, Tim Wilder, and the people of California, New York, Japan and especially Italy who appear in many of my images. Piaccera.

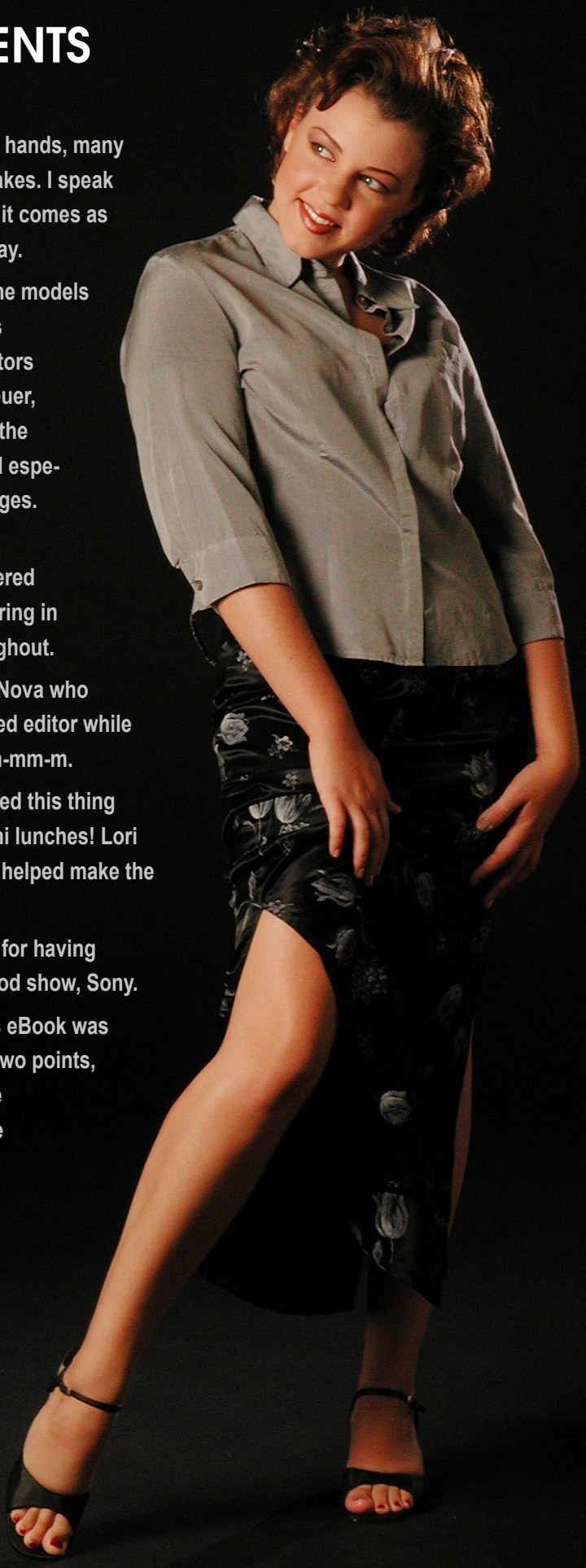
Thanks, too, to my friends who have suffered enough hearing about this project, appearing in images, and yet, were encouraging throughout.

Then there is a special thanks to Marian iNova who helped by serving as fresh eyes and valued editor while my rants took shape. Thanks, babe. Mmm-mm-m.

Will Guest, you know how much you helped this thing be born, and so do I. Here's to more sushi lunches! Lori Bender, you not only posed for shots but helped make the first eBooks. How stunningly versatile!

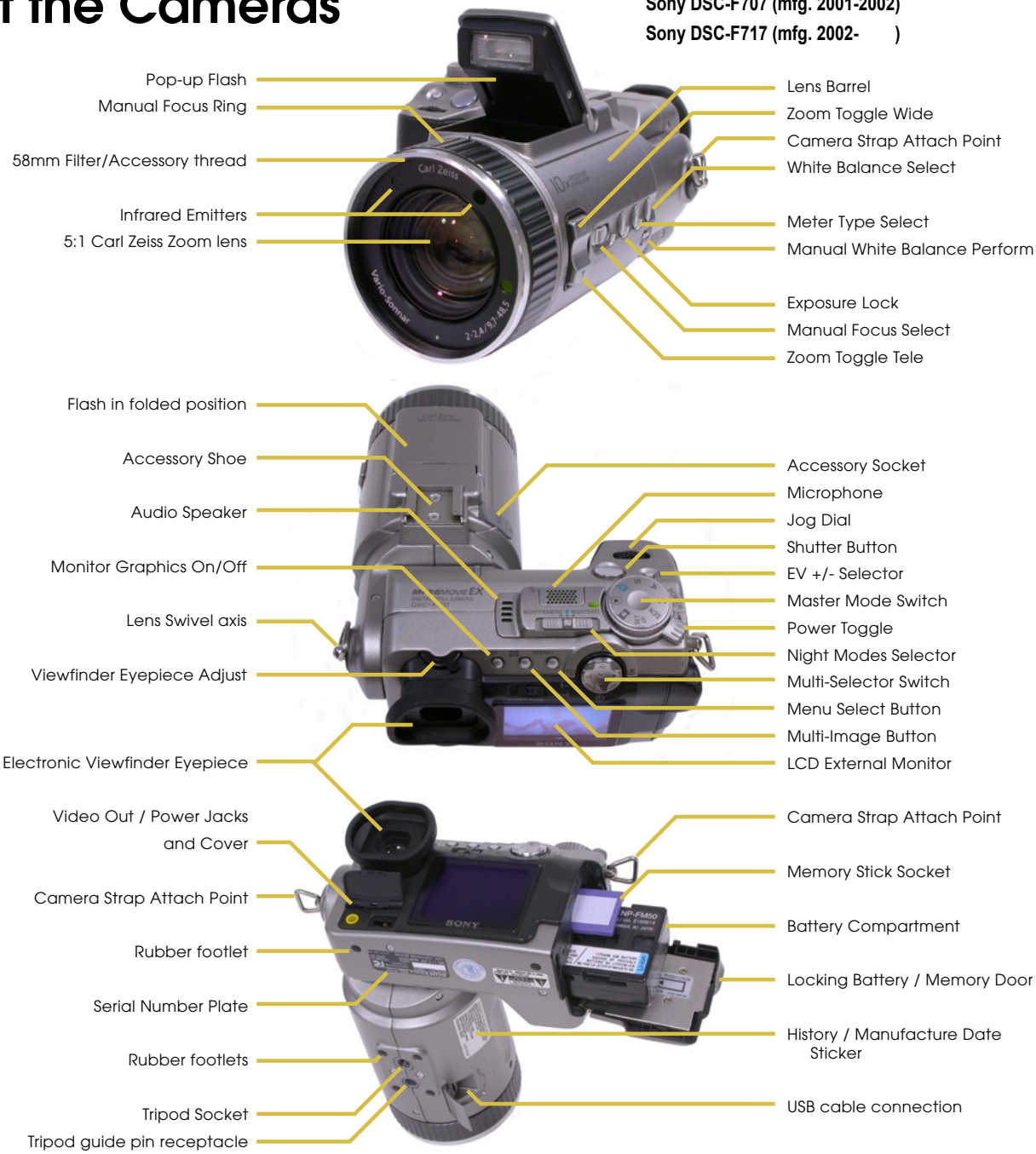
Of course, we all are all indebted to Sony for having produced the DSC-F707/717 cameras. Good show, Sony.

As noted in the Foreword, the path to this eBook was Gordian: The shortest distance between two points, it was knot. A particular badge of courage should be extended to William Dorich, the publisher who took a deep breath, rolled his eyes, and decided to embrace this new publishing medium with an open mind. Your counsel and fearlessness are appreciated.



Meet the Cameras

Sony DSC-F707 (mfg. 2001-2002)
Sony DSC-F717 (mfg. 2002-)



DSC-F707

DSC-F717

Lens barrel controls for both models are functionally identical follow different ergonomic arrangements. The F717 adds zoom to the lens ring when it is in auto focus.

DSC-F707

DSC-F717

Top controls show only one change. The addition of a Full Auto exposure mode on the F717 (color camera icon) and renaming of the original Auto mode as Program Exposure (camera icon with “P”).

Chapter 1

SONY
The One and Ony

The ad campaign always put an "I" in the tag line, but I could never get the "ony" out of my head. For so many years, and in so many ways, Sony was the clever upstart. Here was a Japanese company that continuously cranked out smart toys. The tiny cassette machine, the first practical portable video tape recorder, the miniature radio, the Walkman—where would it end?

Early Sony TR-55 transistor radio.

Sony was born in 1945 when Masaru Ibuka and Akio Morita started a telecommunications company in Tokyo that made converters to turn AM radios into shortwave receivers. The novel product caught on. From the beginning they stated their goal was to produce products that incorporated creativity and innovation.

They had little more than dreams at first, but they knew that in post-war Japan, a spirit of new beginnings included the opportunity to build a different sort of company—one that skirted traditional pitfalls. By 1950 they had made a magnetic *Tapecorder* that used their own brand of *Soni-Tape*. By 1954 they were manufacturing transistors, and by 1955 they were looking for an appropriate marketing name for their products, one that would be easy to pronounce in any language, especially to US consumers who wanted to buy these new-fangled transistor radios. In 1958 they officially named their company the Sony Corporation. The word itself is an invention, a riff on the idea of "sonic."

Early on, Sony produced both consumer and professional products. Their microphones and tape recorders earned high praise, and their early adoption of multi-track recording broke new ground. In the 1960's they made the world's first all-transistor TVs, first micro TVs and first home-use VTRs. Their Trinitron color sets became the standard by which all the others were compared, and they invented the video cassette with the 3/4-inch U-Matic system just as men were first stepping onto the moon.

Their Betamax VCR appeared in the mid 1970s. It recorded pictures and sound from your TV! *What a concept!* But, it didn't capture the popular imagination, and the reason has to do with the Paradox of the Talking Dog. It's not that the dog has anything worthwhile to say; it's just that he can talk at all. The Betamax spoke to home recording all right, but Americans wanted—insisted really—that the recorder capture a two-hour movie or baseball game. Not only did the dog have to talk, he had to say something profound.

If there is something a manufacturer doesn't ever want to hear, it is, "you forgot something big." In the case of the Betamax, it lacked a two-hour threshold. When public opinion gazed upon the Betamax and declared, "Hey! This %$@&# thing won't record my Movie Of The Week / Baseball Game / Tonight Show!!!" the only thing to say was, "Oops." A very hard word to exclaim, especially if your technology company has declared itself to be creative and innovative.

The Betamax snafu was a shocker. Within a year, competing VHS tape was announced with a two-hour capacity in a slightly larger cassette. Never mind that the picture wasn't as clear as the Betamax image. The rest is history.

But Sony, on balance, gets it right much more than it gets it wrong. They take pride in cutting to the core of an idea more directly, or more ergonomically, or more functionally than is seen in designs of similar equipment from competitors. But there is another side to Sony only seen by media professionals.

Their BetaSP, DigiBeta, D-1, and D-2 video gear, professional monitors, cameras, and High Definition (*HD*) Video production equipment populate much of broadcast television. None of this is Walkman territory, but all of it delivers that thorough "extra" bit of function or consistency or reliability.

After the Betamax mistake, the engineering team redeemed the Beta cassette as a professional product; broadcast Beta component video field recorders. These were small Beta recording decks married to small, studio-quality cameras. Eventually the two ideas joined a common chassis and became "camcorders". Now Beta casettes capture HD.

By the end of the 1980s, Sony had created miniature Hi-8 video camcorders small enough and rugged enough to survive a trip over Niagara Falls in a barrel. I know this from first-hand experience. I sent four of them over the Falls in stainless steel barrels gathering point-of-view footage for a themed attraction there. The cameras all survived, and even the one that got ripped out of shape still runs! (Its barrel landed on a rock.)

Biggest / smallest: Sony HDW-F900 HDTV camcorder and Micro MV format digital video camcorder.

More recently, they have miniaturized digital camcorders down to the size of a bar of soap, and their smallest video camera could fit inside your pencil.

Sony is a leading supplier of HD cameras, recorders, switchers and special electronics that are used in high definition cinematography. It should be no surprise to see Sony taking a leading role in the evolution of digital still photography; they have a long history of digital video camera and imaging know-how.

THE LOWLY PIXEL

Digital still cameras don't use film; they pick up the parts of an image one pixel at a time, and Sony already had pixels in their pocket as digital still photography began to evolve.

Pixels are the smallest resolvable spots of detail in a digital image. In a way, they're like the dots that make up pictures in magazines, books, and newspapers.

But only "sort of."

A pixel is more like a color tile. If you make a mosaic image with enough tiles—and then stand way back from it—you stop seeing individual tiles and start seeing the picture. The more tiles, the more detail in the picture. Art mosaics are rarely made with the rigorous checkerboard regularity of a digital camera image, but digital cameras depend on a consistent grid of rows and columns to gather and display images.

TV size pictures with 640 x 480 pixels (307,200 total) called *VGA,* were actually regarded as a still camera milestone in the early 1990s. But Sony knew that their consumer imaging chip fabrication experi-

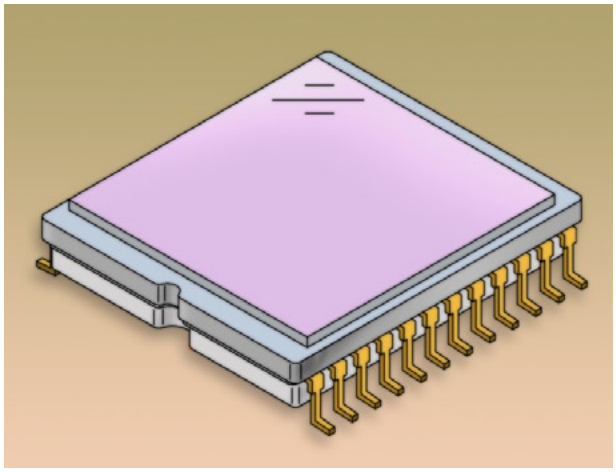
DV video (top) is sharp ...for video. But the bottom image is an F707 VGA shot with the same pixel count.

ence—a central technology for their many 8mm and Hi-8 camcorders—would carry them into the loftier realms of megapixel image sensors. Since 1994 they had been fabricating the imaging chips for the DHC500, a full-resolution, 2-megapixel HD video camera that inhaled moving images while maintaining nearly all the virtues of film. How long would it be before some of this extravagant silicon would trickle down to the consumer's hand?

By 1996 they had created a 680,000-pixel chip for use in single-chip DV video cameras and packaged it with a 10:1 optical zoom lens on the tiny PC-7 camcorder. A brick of electronics the size of a box of animal crackers, it made pictures that were miles above prior consumer camcorders. So was the price. But here was a machine that could travel in a jacket pocket and make network TV-quality images. Advanced features such as FireWire digital data transfer and flip-out monitoring have allowed it to stay current with present day computer editing and image gathering. You see images from these cameras all the time on TV in nature programs, documentaries, news images, survival shows and even occasionally in dramas.

A continuous stream of improvements has followed. That's the usual thing with developing technologies these days, but the first version of Sony's tiny DV camcorder was such an ergonomic and functional winner, that I have used it professionally, as well as for fun, to this day. It doesn't give up.

Sony products are everywhere. In cars, on jogger's ears, across the room from couch potatoes, inside robotic pets, under gamers' thumbs, in theater sound systems, beneath the skin of security cameras, fulfilling people's computer needs, and now inside most of the digital still cameras being produced.



The ICX28AQF imaging chip in the DSC-F707 & 717 digital still cameras.

Not just a few brands—*most* of them.

Sony's video experiences spawned a string of image gathering chips —imagers— that have placed Sony at the very heart of the rapidly evolving field of digital still photography. Sony makes more of the imagers found in Canon, Epson, Minolta, Nikon, HP, Olympus, Casio, Epson, Sanyo, Ricoh and Kyocera cameras, than any other manufacturer. In its way, Sony has become the King of Pixels.

As long ago as 1994, Sony had produced video-speed image chips with two million sensors. These were created at several thousand dollars per chip and it took three of these chips (one for each primary color) and a precision optical block to create an image. The camera sold for over a hundred thousand dollars. They were the first solid-state HD cameras and in actual tests designed to show their limits, they won out over 35mm movie film in almost every way. File this away: HD video cameras produce an image with 1920 x 1080 pixels, about equal to a 35mm film frame. There will be a test later.

By 1998 Sony had produced affordable still camera imaging chips that contained over a million sensors, and with technologies borrowed from consumer video, only one chip was needed for a full-color image. The cameras sold for less than a thousand dollars.

Once the million-pixel mark had been achieved, consumers started to feel like these images had a certain validity. A few professional early adopters picked them up and started playing with filmless photography. With an image of 1280 x 960 pixels, a nice 6 x 8 inch (150 x 200mm) print could be created on a good ink-jet printer. They were impressively sharp, colorful and inexpensive. Plus, they popped out on your desktop immediately, not from a store across town in an hour.

Digital images are measured in pixels.
VGA = 640 x 480.
XGA = 1024 x 768.
SXGA = 1280 x 960.
UXGA = 1600 x 1200.
QXGA = 2048 x 1536.
5 Mp = 2560 x 1920.

Internet images don't need to be large, so digital images were an instant hit with the Internet cognoscenti. Most Internet images are displayed at VGA resolution or smaller, and images gathered from the full-size chip get down-sampled to this size, yielding pixel-perfect images for the Web.

By 1999, 2-megapixel still image chips were abundant, so more professionals started taking them seriously. The year 2000 witnessed a torrent of 3.14-megapixel cameras, and by then photographers of every kind were turning digital. In the last half of 2001, cameras started showing up with Sony's 5-megapixel imaging chip. Including a major surprise from Sony's still imaging division.

GEOMETRY LESSON.

Many digital cameras select from different size frames in 4:3 and 3:2 aspect ratio. The TV size image is called *VGA*. It stands for *Video Graphic Area*. With 640 x 480 tiny spots making up the image, it is about as sharp as a one-column head shot you would see in a magazine. Not a whole lot of detail, but useful.

XGA (*Extra Graphic Area*) images have 1024 x 768 pixels; 0.75 megapixels. The cameras in this eBook don't make XGA images, but the nomenclature is recycled.

With the 1.3-megapixel images that appeared in 1998, suddenly 1280 x 960 pixels were available—four times as much surface area and detail as VGA images. These are called *SXGA* for *Super XGA*. Actual pixel count: 1,228,800 or, in advertising parlance, 1.3 million. Advertising always rounds upward doesn't it?

When 2-megapixel images appeared, they were called *UXGA*, or *Ultra XGA*, and those are 1600 x 1200 pixels in size. The actual pixel count here is only 1,920,000 but that was close enough to two million to be within advertising range.

2000 witnessed the 3.14-megapixel image, which was also called *QXGA* by some, (*Quad XGA*) since it was exactly four times the surface area of XGA images with 2048 x 1536 pixels. For the first time in a long time, the advertising was numerically accurate. Here 3,145,728 pixels were at work. I'm surprised that this didn't immediately become 3.15 megapixels or 3.2 megapixels in the ad copy, but a feeling of truth-in-advertising was bouncing around digital camera circles in those days, so it stayed at 3.14.

By this time, a large number of 2- and 3-megapixel cameras were working their ways into the hearts and minds of our computerized society. Images for the Internet, desktop publishing and E-mail distribution had become mainstream, and serious photography

was being accomplished by a growing number of digitographers.

Late in 2000 a 4-megapixel chip was announced. Its image would be 2272 x 1704 pixels big, but its physical size would be exactly the same as the previous 3.14-megapixel imager. Aha! Camera makers who desire the advertising advantage of "Wow! *FOUR* megapixels!" could simply plop the new chip into existing cameras along with all the previous optics and adjust the internal computer to make it all work. Olympus, Canon, Casio, and others adopted this easy upgrade.

Work on the 5-megapixel imaging chip was announced in late 2000, but it did not see the light of exposure until 8 months later. (These devices are *NOT* easy to make.) Cameras from a few major brands started to appear through fall of 2001. Among them Minolta, Nikon and Sony itself.

There is more to a digital photograph than just pixel count. This image is an extreme test of brightness, contrast and subtlety, yet the 707 has handled it very well indeed.

RULES OF THUMB

The importance of the 5-megapixel chip becomes obvious when the dominant photographic format is used as a benchmark. Although the earliest film photography started with pictures that were display size in the camera, the introduction of photographic enlargers changed the basic premise. With an enlarger, the final result could be any size desired. But more important, the original piece of film didn't have to be related to the size of the print. Cameras shrank. By the 1920s a whole movement of thoughtful photographers were abandoning the large format film sizes of 8 x 10 and 4 x 5 for small roll film cameras and a cartridge fed version: the 35mm pocket camera.

Leica cameras from Germany showed that small was good. Such a tiny cartridge! A few feet of sprocketed movie film—small darkroom enlarger, tanks and equipment—interchangeable lenses—what could be better? Serious photographers set out to maximize its usefulness and qualities. Extreme portability due to small size made a huge difference. New art forms were spawned. Henri Cartier-Bresson finally had something to do with his decisive moments.

News photographers and photo artists loved the small gear, but like everything revolutionary and evolutionary, some regarded it as inferior. The individual frames were delicate and deserved the greatest care, but with twice the surface area of movie frames, 35mm film grew to become THE dominant film format. Sheet film formats of 4 x 5 and 8 x 10 nearly disappeared from all but the most epicurean studios. Medium format film with rolls of 6 x 6 cm frames inherited the high-quality position for advertising, and 35mm single lens reflex cameras became the staple for art, journalism and consumer photographic experience.

The eminence of 35mm became, in most people's minds, the definition of photographic quality. It makes lovely 8 x 10 prints and can be stretched larger. At 11 x 14 print size, the limits of the image start to appear, and by the time you enlarge a 35mm frame up to about 16 x 20 print size, viewers instinctively back up to take it all in at the speed of a glimpse. Ergonomically, the amount of detail in a 35mm frame mates well with the portion of one's retina that a photograph comfortably occupies.

Images from 35mm film look like this, but this is not a 35mm film image. It's a graphic frame made for digital images from the DSC-F707 and F717. Either format makes approximately same-size prints.

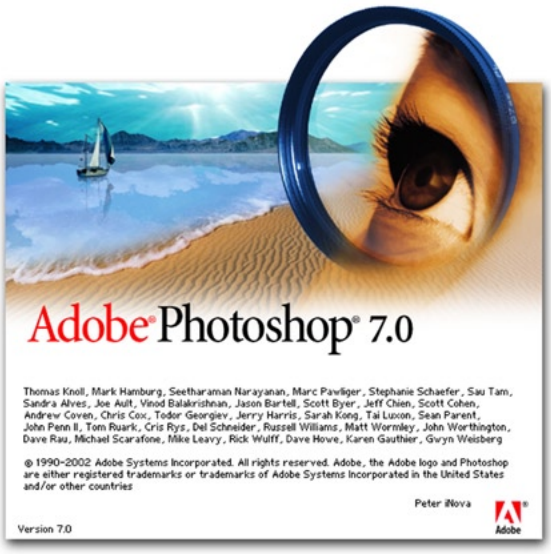
Then along came digital. The entire issue of "photographic quality" became a novel idea again, this time couched in digital terminology. In movies, a similar process is going on right now with *HDTV versus Film*. When a potentially important new medium comes along, everybody and their siblings jump on the comparison bandwagon. Comparable ideas, features, qualities—and especially the numbers that allow contrasts and comparisons to be drawn are trotted out for review and re-review.

DIGITAL SYSTEMICS

When one starts out to make digital images, most think of the camera as being The Key Item. Certainly it is a vital step, but it is hardly the whole story. In fact, it is only a third of the story.

With a film camera, there are the film and its processing to consider. With a digital camera, there is the entire digital support structure to consider. The camera captures the image, and the image exists as a digital data file. One could extract the data from the camera through a commercial printing kiosk and walk away with prints, but that data is your only *original* form of the images. It is, in a sense, the digital "negative" of your image, meaning that it is the closest record to the photometric processes that encapsulated your camera's original perception of the scene it recorded. If you want to keep it, the camera is not the place.

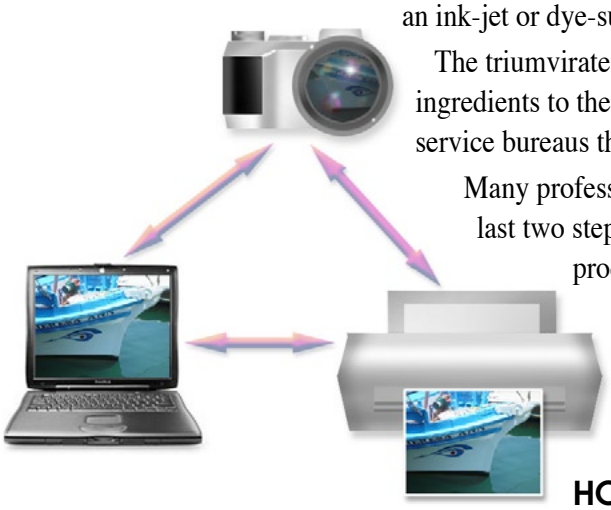
The computer you are using to read this is another vital element. With it, you organize, save, manipulate and distribute your digital images to a printer, a printing service or the Internet via E-mail or a public access site. With a suitably fast transfer system from camera to computer—or camera data card to computer—your images will flow easily into folders you prepare for storage and organization.



But it is rare for an image to be absolutely perfect right out of the camera, so a third ingredient is needed—the software that allows you to manipulate the image to a higher order of tweak. There are many options here, but two specific programs rise significantly above the herd. Photoshop, for the ultimate in digital image manipulation and adjustment, and its kid brother, Photoshop Elements.

Photoshop Elements 2 and Photoshop 7 are both currently available for Windows and Macintosh platforms. The first will set you back under a hundred dollars (US) or so, and the full bore Photoshop will cost you about five times that. When people hear those figures, the natural reaction is to ask, "Is PS7 worth five times as much?" ...and the answer depends on how far you plan to get involved with the process of perfecting your images.

If you ask me—and in a way, you did—the activity of improving images is as natural a part of photography as framing the subject and pushing the shutter release. Of course, I was one of those teenage photo nerds who spent hours gathering a darkroom tan, dipping his fingers into chemicals that produced images on otherwise blank pieces of paper (while staining his fingertips a jaundiced brown), as he learned to love the lighting conditions only a caveman would appreciate. With an initiation like that, today's Photoshop options seem like luxuries beyond compare. You don't need a darkroom, only a dim one that doesn't wash out the computer screen; the chemistry has been replaced by mouse clicks, and the paper glides through an ink-jet or dye-sublimation printer, resulting in stunning sheets of full-tonality image.



The triumvirate of camera, computer (software) and output device are the essential ingredients to the digital system. Options include printers, Internet connections and service bureaus that perform the equivalent tasks once provided by The Lab.

Many professional film photographers are becoming digital-savvy through these last two steps, computer software and printer, with an increasing number of them producing desktop image perfection without enlargers, darkrooms or chemistry.

For them, the jump to a digital *camera* is viewed with a certain reluctant skepticism, but cameras like the Sony DSC-F707 or 717 are changing that.

HOW BIG IS A PHOTOGRAPH?

How long is a boat? How high is a ceiling? How large is a house? When answering questions like this, everybody's idea would be unique. Thus it is with photographs.

To many, photographs are very predictable. The one-hour photo store streams them out with monotonous regularity. They are 4 inches by 6 inches, they have a glossy surface, they are color and they have no borders; end of story. If that impression rings true to you, then a 1.3-megapixel camera will give you quite a bit of usefulness when paired with an ink-jet printer such as the Epson 785EPX. It can be outfitted with a roll of four-inch wide paper and will generate glossy, borderless, 4 x 6 snapshots of excellent quality, hour after hour, until either paper, ink or your wallet runs out.

Those same photographic files will make very decent-looking 5 x 7-inch prints. They don't rival 35mm prints this size, but your mom will like them a lot. You could try making an 8 x 10 print from

them, but they will only be delivering 120 image pixels into every inch of print paper. That is similar to the image detail of a newspaper (although the color will likely be much better), so you won't be making as many of these. Never fear, the 2-megapixel cameras do a much better job. Their 160 details per running inch of an 8 x 10 print raises the print quality to the Good category. Depending on the image, they might strike people as being Very Good. And all smaller prints will feel exceptionally photographic.

With 3.14-megapixel cameras, their 2024 pixels will hit the paper with just over 200 pixels per running inch on that 8 x 10 (really 7.5 x 10). That's potentially more detail than the images from the best-looking pages in National Geographic Magazine. At this point, digital photography has hit a threshold. It has matched the detail level of fine dot-screen printing, the point at which most of our experience of "high quality printed results" is found. Here, 8 x 10s are very good indeed. All smaller images are superb. Cameras with this many pixels will be with us for a long time, because a magic combination of pixel count, cost of camera development, cost of prints and ergonomics of file size have all been met.

But it is not over, yet. Sony's 5-megapixel chip is 25% larger in each dimension than the 3.14-megapixel chip, in both physical size and pixel count. That requires it to be fitted to larger optics, so its glass takes up a greater volume of space. Its prints are commensurately larger, too.

Each of these evolutionary stages has been designed to serve a specific niche in the field of digital imaging. Each niche includes the ones that preceded it. The 1.3-megapixel chips create cameras that are good for pass-around prints and Internet uses. The 2-megapixel chips are fine for images somewhat smaller than a full letter page. The 3-megapixel chips satisfy the letter page realm, and the 4-megapixel chips are for small-size cameras with extended image quality. The 5-megapixel imaging chips perform at the brink of 35mm power. What's next?

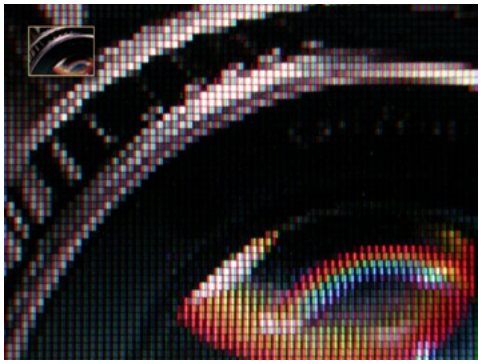
Small, medium size and large prints. If these had been produced via film and a lab, they would not be so close in color density and hue. Your ink-jet printer will make them identical.

If the future continues to expand each generation by about 25%, the next Sony imaging chip will be 3200 x 2400 pixels and will appear in 2003 or 2004. At that moment in time, the digital revolution will have caught up with the performance of 35mm film, and steps beyond that will be slower to appear. Once you have won the race, you stop running as fast.

ELECTRON PROCESSES

That future chip will be joined by the digital imaging support technologies that have been evolving at the same time. The sharpness of a camera that uses one imaging chip is compromised by the fact that sharpness, dynamic range and color all must be intercepted by a single sheet of material. At the surface of these chips, they look like a field of color tiles. Each sensor is covered with a color filter. Without the color filters, the camera would only see a black and white image. But by distributing color filters on top of the sensors, each sensor now relates to the world through its particular rose-colored glasses.

On your computer monitor, red, green, and blue glowing phosphors tickle your eye into seeing all the colors of the rainbow. If you can derive the radiant red, green, and blue parts of an image, you



Computer screen, top, and ink-jet print, bottom, show the image structure that sneaks past our eyes. The tiny inset in each image gives a better idea of how we percieve each.

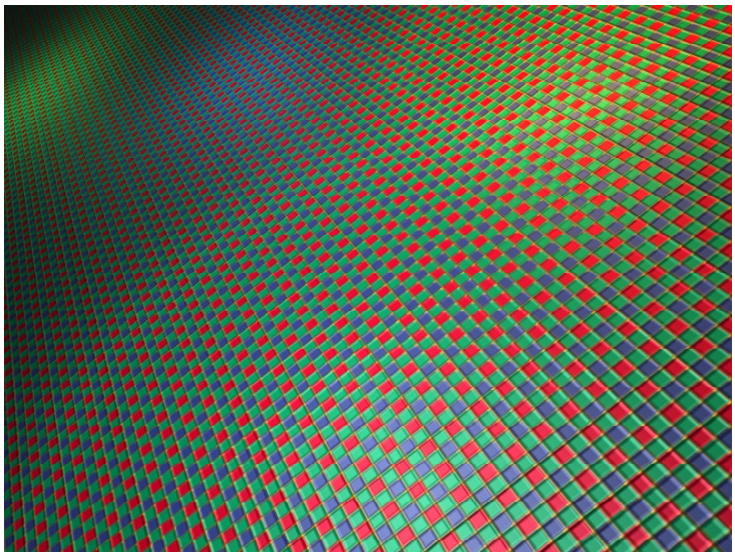
can pass it around as three layers. That's "additive color" because it glows at you, adding the colors together on your retina.

But surprisingly, ink on a color print must be made up of colors that reflect two of these RGB primary colors at once, having absorbed only *one* of them. Cyan ink reflects both green and blue, and it does this by absorbing only red. Yellow reflects both green and red and absorbs only blue. Magenta reflects both blue and red, because it absorbs only green. When color is absorbed, it is subtracted from the colors that reflect. So when these inks pile on top of each other, they absorb more colors. As a yellow and magenta ink pile on top of each other, blue and green are both absorbed. The only color that is left is red, so red is the only color that can bounce back to your eyes. That's called subtractive color.

Image chips work less intuitively. They ultimately capture the colors of the world directly. Two schemes are used, and Sony's imaging chips are available in both versions to digital camera manufacturers. One uses four colors of color filter; magenta, cyan, yellow, and green (*CMYG*) laid out in a square covering four sensors. That pattern repeats in all directions. The other uses red, green, and blue (*RGB*) in a cluster of four that repeats the green and uses one each of the red and blue. This doubling of the green filters approximates the human eye's appreciation of luminance.

LUMINANCE DANCE

A colorless black and white photograph is luminance only, and our eyes see it in terms of 60% green, 29% red and 11% blue. The pictured RGB Bayer filter array captures luminance and color. By doubling the green, the color sensors of an imaging chip create a closer match to human vision. Green at 50% and red at 25% approximate the luminance formula our eyes crave. Blue gets more than double its needed presence, but there is no such thing as half a pixel, so this pattern gets as close as is practical.



With the CYMG filter formula, three of the filters pass green as part of their color analysis. Here exists an overlapping sensitivity to color, because three of the four filters see two colors at the same time. The green, yellow and cyan filters all see green light well. The yellow and magenta filters see red light well, and the magenta and cyan filters see blue light well.

So how could this four-color pattern see red, green and blue color? It is logical to assume an object is red when both the yellow and magenta filtered sensors near each other register it as being bright IF the nearby cyan filter doesn't see it as bright at all.

Logic like this is applied to each and every sensor taking into account what its nearest neighbors are reporting. At the end of this huge math test, the computer inside the camera can assign values for RGB layers and pass the digital data on to a section that compresses the image for storage. Oddly, most digital cameras use this filtering technique.

The F707 and F717 use RGB filtration in their array and that's good for sharpness. With half the sensors seeing green, a computer algorithm can predict the information between them quite well (top image, right). Thanks to image processing techniques developed by NASA and others back in the 1970s and '80s, the relatively low sensor count per color is not as large an issue as one might think. Where conflicts and ambiguities arise, imaging engineers have found clever solutions to resolve them. Thankfully, computational power has evolved to meet these challenges, and the limitations of the color-filtered sensors has yielded to enormously clever software.

The 707/717's RGB filters make direct sense of these colors but the red and blue layers only see 25% of the details in the image. How can they create a sharp impression? They get help from the green layer which is more detailed. Red and blue color detail is "trapped" along lines of similar tonalities found in the green layer. In guessing where to put the red and blue colors, mistakes are inevitably made, but guess what? Your eyes don't care. A pixel or so of off-position color is something our brains were designed to deal with all the time. Part of the fix is in the technology, and the rest of it is in our heads.

Behind each shutter press, a team of specialized math processing chips and software programs are attacking each image with super-computer zeal (center image). Although it only takes a tiny fraction of a second to do the work inside the camera, if you had to do the 5 million additions and subtractions on paper with a pencil, working 8 hours per day, it would take you eight or nine years to add up the values in a single image.

But the camera is nowhere near finished. It derives areas of color and luminance separately. Dial the color down on a home TV and you get a black and white image. Lay soft colors on top of a sharp black and white image and your brain tells you that you are seeing a sharp color image. In practice, the color doesn't have to be as sharp as the underlying black and white image, and sophisticated image editing programs like Adobe Photoshop use the idea of a high quality black and white, or luminance, layer along with two color layers that describe the relative vertical and horizontal position of a color on a color circle. This is not the intuitive RGB layers one usually thinks about at all.

As long as the camera can derive that luminance layer, it can apply electronic sharpening to it. This is somewhat like the Sharpness control on your TV. In a sense, it forces areas of contrast to tighten their boundaries (bottom image, right side). Instead of transitions from light to dark over two or three pixels, the areas are processed with instructions to make a harder, more abrupt transition. The result is an immediately sharper image. The computer within the camera has the best view of the original data making the image, so it has the best shot—so to speak—at sharpening the picture.

Sharpening effects can be applied in the camera or later in an editing program such as Photoshop. There, the effect is called *Unsharp Mask* which is almost guaranteed to be confusing. It makes more sense when one realizes that what it does is *mask* the phenomenon of *unsharpness*.

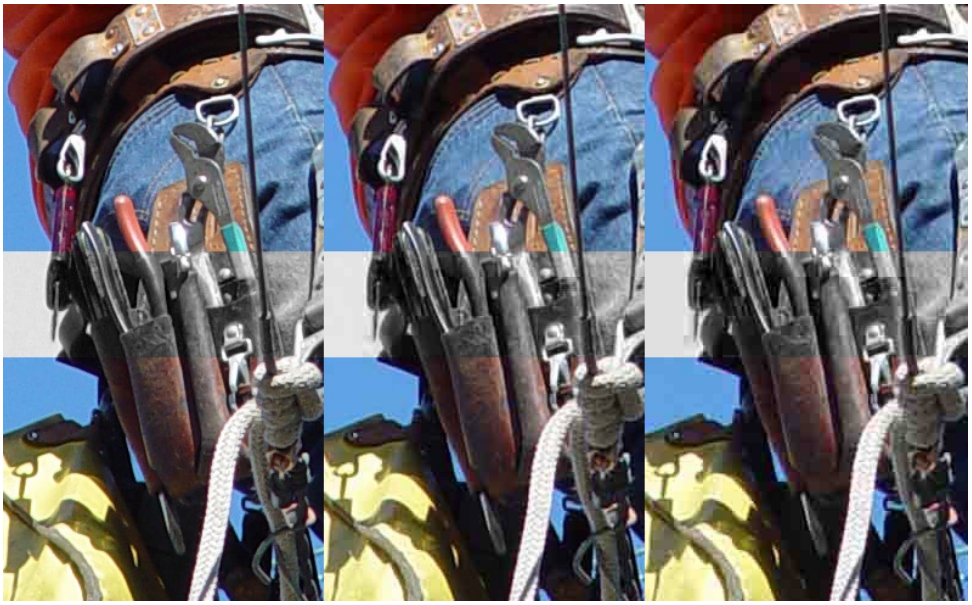
SONY DSC-F707 crop from original of image above.

Camera chip view (top) would yield processed view (middle). Electronic sharpening before and after (bottom).

CMPRSN

When the camera is finished refining the image (and I am leaving out a few more books worth of refinements here), it passes it to the compression engine where a different sort of analysis is performed, and a JPEG compressed image is produced. JPEG gets its name from the *Joint Photographic Experts Group*—a committee of visual thinkers who figured out how to throw away most of the data in an image without letting your eyes see the difference. JPEG compression is a cluster of technologies that intelligently approximate an image so well, that a compressed image is very hard to tell from an uncompressed one. Unless you compress too much. And you can.

With greater compression comes smaller files and bigger compromises. A compressed 4:1 or 8:1 image will look darn good. A 32:1 compressed image will look quite chewed up. Compromises from compression are carried into the file, never to be eliminated. Once the digital image file has been compromised by JPEG or sharpness manipulations inside the camera, the side-effects from them become part of the picture and will not disappear. Under certain conditions, they can be somewhat rescued.



Progressive regression in compression. A well-compressed, relatively large file, left, will look virtually as good as a non-compressed image. The maximum compression on the right shows many artifacts, but takes up a tiny fraction of the memory space.
At 200% enlargement, you are viewing a 1:1 crop from an F707.

One can put a file into Photoshop and manipulate it by trading some artifacts for other visual compromises. My own *iNovaFX Photoshop Actions* include versions that reduce certain heavy JPEG artifacts. While artifact reduction may help a troubled image, it does so at the expense of other image qualities. Small-scale texture, noise and JPEG artifacts all look the same to the computer, but if you don't mind sacrificing some texture, you may be able to use higher compression without having it become obvious. In order to keep the picture from looking artificially smoothed at this point, new random noise is introduced to add the normal texture of grain back into the shot making it appear more pictorially credible.

WHITHER DIGITAL

Digital cameras don't need to carry film. They don't need to be viewed through the way film cameras do. Monitors and zoom lenses and memory cards and batteries abound. Pictures can be used instantly or trashed instantly. A camera full of images can become a camera full of fresh, empty media with the press of a few buttons. Digital photography is so different from film that the only things that are similar are the lens and the result. And, of course, the batteries. But film cameras have only adopted electrical systems relatively recently. In the 170-year history of film photography, batteries have been used as an essential component for only the last 30 years. Digits couldn't move without them.

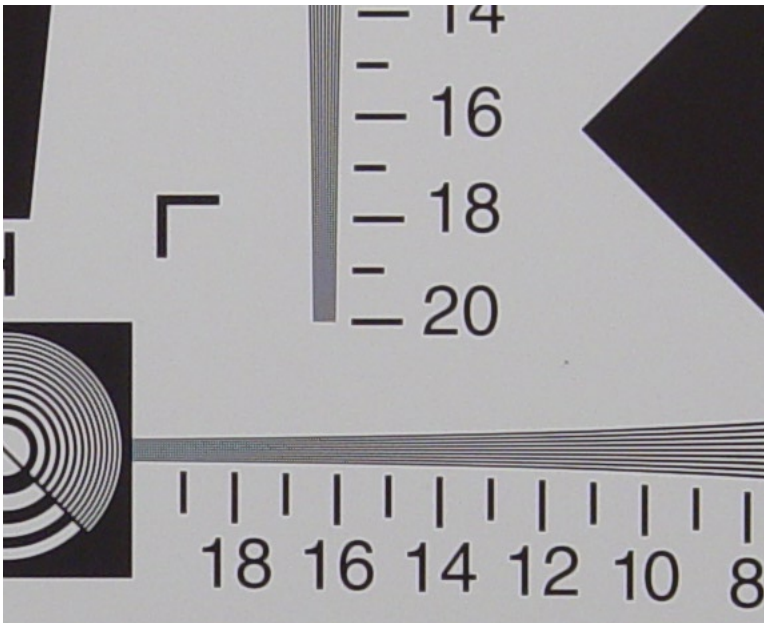
Film cameras are highly evolved. The recording medium can only be used once, and its result is not immediate, but that gains it a certain irrevocable continuity. It's impossible to lift the incriminating frame from the middle of a roll. Processing—even from a Polaroid—takes time. Digital images appear for playback so quickly that the time factor is not perceived as being an issue.

High-end film cameras that are used by professionals have acquired many features that started with amateur gear. Auto Focus, Auto Exposure, Auto Rewind—these are features that first appeared on consumer products to prevent users from making so many errors. Their counterparts in professional gear have caused them to become highly evolved, more accurate and more capable. Advances in both professional camera design and consumer camera design have crossed over to each other. Ease of use is as important now in professional gear as it was in consumer gear. Everybody wins.

With digital photography's rapid growth starting with the advent of megapixel images, these advances have been steadily and quickly establishing their place in digital cameras. Designers of digital cameras inherited all the available film camera technologies from the beginning, and where they *can* dream up new technologies for the newer medium, they do. Again, everybody wins.

Exposure techniques, focus techniques, lens design, flash design, and ergonomic design that was derived from film camera experience, now join computer design, memory management, monitoring, video display, electronic image enhancement, white balance management, viewfinder technologies, and power management to create digital still cameras. Much of the latter comes from video camera experience. In a sense, a digital still camera can be regarded as a large-format, single-frame video camera.

Just as 35mm film photography evolved from the pre-existence of 35mm film for movies, digital still photography is an outgrowth of video technologies. Today's 5-megapixel still image chip collects an image that is about 250% of the pixel count of HDTV cameras (which are 1080 x 1920 pixels at the most). Current single-chip designs are a compromise in certain technical ways, but the image easily shows more detail than the best HDTV frame. Interesting to see how rules of thumb repeat themselves through history.



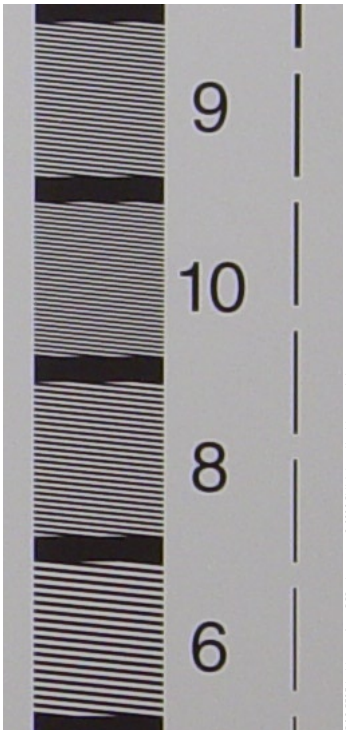
Viewed large, at 200% or 400%, note that the DSC-F707 resolves fine detail. Although the nine converging lines become less well defined starting at 16 (meaning 1600 resolved lines) the camera keeps deriving detail out past 18 (1800). ISO test chart image from DPReview.com. Compare this to other 5-megapixel cameras that give up on detail finer than about 15 (1500 lines).

RESOLUTION REVOLUTION

Film images are generally measured with numbers that speak of repeating detail. One of these is "lines per millimeter" as exhibited by alternating lines of white and black. Since film is physical, a millimeter on one film type is equal to a millimeter on another. But with digital photography, the imaging chips are measured not by their physical size, but strictly by their detail-count. But how on earth might somebody compare film to digital? Pixels mean nothing to film and millimeters don't fit digital.

If one uses film benchmarks and digital benchmarks from the final result, a level of comparability may arise. Here are a few tests that may spray some light on the comparison process.

Electronic imaging is measured using a detail count based on the shortest dimension of the frame. It's a carry-over from early TV specs. Point a digital camera at smaller and smaller detail, and at a certain size, the detail stops being distinct and blurs together. With alternating white and black lines—similar to the patterns used to test film resolution—the point at which lines disappear and middle gray takes over is called the *extinction point*.



DSC-F707 test image from DPReview.com. © 2002 Phil Askey. Used by permission.

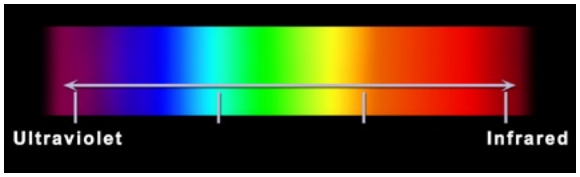
Shallow angle diagonal lines challenge digital imagers. Viewed at 200% and 400% magnification, the 707 shows minimal moiré.

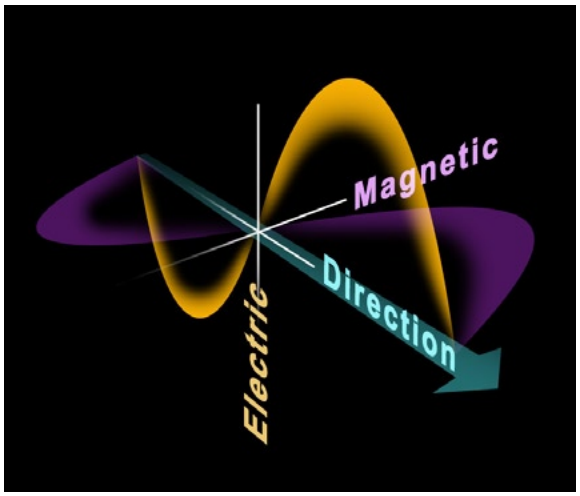
The big 5-megapixel image of the DSC-F707 delivers about 1800 lines of detail at the extinction point in both vertical and horizontal directions. Results from 3.14-megapixel cameras tend to top out at just over 1300 lines, for comparison. In digital images, the details that are resolvable crash against a wall called the Sub-Nyquist limit. Henry Nyquist was a communications theorist in the early 1900s. He noted in 1928 that a valid detail needed AT LEAST two samples (pixels, for instance) to be faithfully reproduced. You need a difference in order to know a detail exists. Anything less *could not* be perfection. But here we are with an image that is 1920 pixels tall showing a result of 1800 lines of detail.

These are not line pairs, but discrete lines, either black or white. Considered another way, a perfect chip looking at a perfect set of lines through a perfect lens would fill the image with 1920 alternating lines of black and white. By actual test, about 1800 can actually be resolved. That means the real world, 5-megapixel digital camera would be up to 93.75% efficient. Compromised, "sub-Nyquist" details can also be seen. The 3.14-megapixel cameras that get a very high 1350 lines (out of 1536 total) perform at about 88% efficiency, for comparison. Read the detailed reviews at www.DPReview.com and www.imaging-resource.com for a sense of relative performance among a number of digital cameras.

In contrast, film is often measured in line *pairs* per millimeter. The test is called the *MTF*, or Modulation Transfer Function, and it seeks to observe how well line pairs that start as alternating solid black and white lines end up on film. As lines get smaller, they lose contrast into the visible grain structure, eventually becoming so small that they can no longer be seen. MTF numbers are at the limits of contrast, so a piece of film showing faint line pairs that are only 25% contrasty will still include them as part of its line-pair specification. Film's extinction point is more gradual than digital's.

Digital cameras lose resolution suddenly at the Nyquist limit, but before that point is met, they are better at retaining detail, color fidelity and tonal accuracy in ways that film cameras don't. Surprisingly, our own eyes behave more like digital cameras than film, so the qualities of a digital image are a very good match for the way our own biological cameras see.





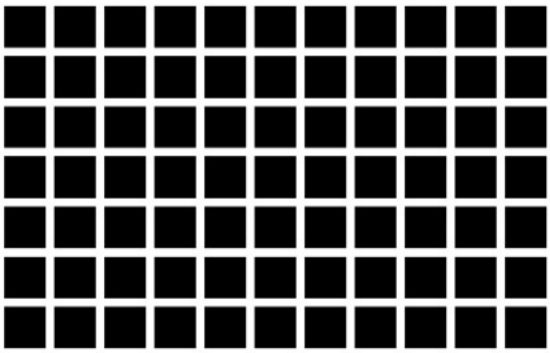
THE BEHOLDER

All of photography has only one destination. Eyeballs. And not whale or eagle eyeballs, either. Our eyes are specialized extensions of our brains that have lenses plus some of the most sophisticated image gathering surfaces ever created in nature. We see photons that fall in the most populated area of the spectrum from deep red to nearly ultraviolet. Photons that wave at us from 700 to about 400 nanometers in size are fair game for our retinas. A nanometer is a billionth of a meter. A millionth of a millimeter. Very small indeed.

Photons baffle physicists. They can't paint an intuitive picture of them, so they say that photons are like particles in some ways and like little single waves in other ways. One guy even decided they should be called "wavicles". Imagine a teeny electro-magnetic sine wave that is only one wavelength long, wiggling through space until it intersects with something such as an atom, or molecule or microscopic piece of dust. When it hits and is absorbed, a tiny amount of energy rattles the target, and almost instantly, a new photon pops up in a new direction.

—Or, the photon may simply glance off in a new direction. —Or as it encounters a transparent surface, the photon merely bends its trajectory slightly. In some cases, the photon burrows into the target and a new photon of a completely different wavelength emerges.

All these kinds of interactions *do* happen, and both cameras and eyeballs organize them onto a sheet of image with a lens, so they can be detected with a thin layer of photo sensitive material; a film of sorts.



Blow this up on your monitor screen. See those elusive gray spots at the intersections? Your eye/brain system made them up. They're not really there and they only appear where you're *not* looking. Proof that you can see what isn't really there.

Our eyes have a kind of film that is more like a digital camera than a film camera. It's instant, a single image layer, sees luminance well and color less well, and it sharpens the image after it has been gathered. The retina is several layers thick, but only one layer has light sensitive receptors. Under this layer at least four more fast-acting nerve layers take the output from the photosensitive cells and immediately process it. Contours and lines are detected and enhanced before the picture is sent to the back of your brain a few centimeters away. There, more processing occurs. All that processing goes right through us without ever being noticed. Until, of course, we are faced with an optical illusion. When we see a bona fide optical illusion, we can begin to understand how odd our eye/brain system really is. The proof is in the seeing. Often a simple image shows us that seeing should not be believing.

Beyond the obvious optical illusions are the ones that aren't so obvious. These are happening to us on a moment-by-moment basis. As you read type on a computer screen, letters like O seem to be quite round. Yet, you *know* that the computer is making that letter out of little square pixels or dots of brightness. How come it doesn't look like the cluster of tiles it really is? Optical illusion, or normal visual processing? If your computer is worth its salt, the letter is smoothed into place with pixels that are not simply black and white, but consist of shades of gray in between to help fool your eye into seeing smooth curves.

These kinds of human optical reconstruction techniques are fully known to designers of digital image hardware. Your computer is already helping you see curves, so it's no surprise that your camera is "helping" you see pictures. In a very unambiguous way, a digital camera panders to your senses.

CASE IN POINT

Sony has produced a lot of digital still camera models. Probably more different models than any other manufacturer. Perhaps they felt that since they hadn't been making still cameras for fifty years, they needed to catch up with more experienced companies, but in any case, their first dedicated still camera appeared in 1988 and they've been expanding on the technologies ever since.

Today the world has awakened to high quality digital still photography. Three years ago you couldn't get an art director to consider your digital photographs at all. Now they can't get enough of the D word. High quality cameras are available from all the familiar names in photography from Kodak and Fuji—known for their film—to Canon, Olympus, Nikon, and Sony.

Which leads us to the body in question.

The twin subjects of this eBook are, of course, Sony's advanced Cyber-shot series DSC-F707/717, 5-megapixel digital still cameras. They have features that take them straight to the heart of the future.

- *Unique body plan that both avoids and respects film camera conventions.*
- *A fast f/2.0~2.2 zoom lens with a 5:1 magnification range.*
- *Multi-speed motorized zoom.*
- *Night focusing with a holographic laser display projector.*
- *Night vision with infrared lighting.*
- *Infrared image gathering in daylight. (You'll see...)*
- *Chewing gum size Memory Stick modules.*
- *SLR-like electronic Finder AND a large external LCD.*
- *Advanced long-life InfoLithium battery power.*
- *Rugged magnesium body.*
- *Fast power-up and review speed.*
- *Fly-by-wire manual focus (and zoom on the 717)*
- *On-screen live exposure histogram (717)*
- *Movie modes with sound.*
- *Audio note gathering with images.*
- *Ergonomic, dedicated controls to facilitate fast operation.*

And the whole thing weighs less than a pound and a half.

It is almost as if Sony designed these cameras to answer nearly every desire in the book. The large zoom range gives the same angle of view that a 38 to 190mm zoom lens would achieve on a 35mm camera.

The fast auto focus is silent and positive. The body pivots behind the lens to present the exterior LCD for viewing from a wide range of positions. A special IR night mode doubles as a daytime infrared image-gathering mode when used with special IR filters. MPEG movies with sound can be captured to memory. Focusing in total darkness can be achieved with a built-in laser projector.

Laser Projection. THE solution to focus in the dark.

And capping it all is the sheer image quality. Here is a camera that can collect images that will stand up to 11 x 14 and 16 x 20 prints. Note: in order to make the latter, you will have to have a printer that is capable of bigger sheets of paper than desktop printers! Or, just to put a spin on it that will have you thinking ahead, the next time you go out looking for an ink-jet printer, you would be well advised to walk past the ones that work with mere letter-size paper, and start looking at the ones which allow tabloid-size pages or larger to be printed. Epson, Canon and HP have big printers. Start looking there.

When you first pick up the F707 or 717, it looks like a prop from a Sci-Fi movie. And, let's face it, that's what it is. The swiveling back may surprise your hands at first, since the camera doesn't look particularly swivel-like. As you grab it with your right hand, your fingers fold naturally around the projecting grip on the right side of the body and your left hand has to figure out how to hold the lens barrel, which by now may be drooping under its own weight.

INFOBITIS

For important tips, clues, factoids, techniques, and sidebar tutorials, I use the *InfoBite* as a way of highlighting ideas. The InfoBite symbol appears at the head of a paragraph worth understanding. Some InfoBites are extensions of common sense; others are as obscure as can be. Understanding them in principle will help. If I've written them clearly, you will say, "Oh," a lot. Plus, they're easy to scan. Here's one now:

ⓘ Try this: bring the camera up to your eye with the right hand and grab the barrel from below. Notice that your hand twists as you reach for the barrel so your palm faces your nose. Your thumb becomes the only operator for the controls on the left side of the lens cylinder. It's the same gesture you might use to stroke your own chin—except farther out. This is similar to the stance one might adopt for a single lens reflex. The left elbow can rest against your chest, on a table, knee, fence—or just tuck your arm into your left side—anything to make your left forearm into the stable leg of a triangle between your body and the camera. Try rotating your hand so your palm is away from your face. One of these grips will be more comfortable for you.

TWO THUMBS UP!

Your right thumb and index finger become the chief button pushers for the shutter, menu, monitor, power, selection and flash adjustments while your left thumb accesses the focus, zoom, white balance, metering and AE lock controls. It will take you quite a bit of practice to operate all these without looking at your fingers, but that is what will happen sooner or later.

Let's make it sooner. Pick up the camera and start training your fingers how to find the buttons and switches right away. Don't be shy. The

more you play with its functions in your hands, the less time it will take you to get the shot. Since the F707 camera wakes up from completely off in about 2.5 seconds (about one second for the F717), anything you can do—without looking to the other controls—will only buy you better images. If you are embarrassed to look awkward coming to grips with the camera in front of your spouse or dog, take a walk. Shoot a bunch of pictures just to experiment with the controls. See what happens when you try to ruin an exposure or throw a subject out of focus. As long as every practice picture helps to train your fingers where to go to make an adjustment, the time will be well spent.

ⓘ After a while, you may find that your best strategy with the barrel controls involves counting the controls with your thumb or assigning a finger to each control. Pretty soon it becomes obvious that the rear-most buttons on the 707 change white balance while the next one forward switches between meter types and the next locks exposure while the front one switches from auto to manual focus. The F717 switch layout puts manual/auto+zoom ring up front, the zoom toggle in the middle and the rest clustered closer to the back in a vertical spread. Both can be learned quickly.

THE ANTHROPOMORPHIC PRINCIPLE

It is important for you to create a relationship with the camera in which you are in control of it, no matter how confused the camera seems to be. You know what you want, and from the pages that follow, you will know that the camera *can* give it to you, but the camera is very fussy about precisely how it will respond. In a sense, it's as dumb as a screwdriver to start with. But you have learned in the past how to show a screwdriver what to do, so showing this camera what to do is only more complex by a matter of degree. Once you master the basics, the camera will become more cooperative, and eventually it will start to show you some new things. Months after it first enters into your life, there will still be secrets it has kept from you, but very few. You will have mastered the camera and not the other way around. This eBook won't give you every single tip, technique, or procedure you could absorb, but hopefully you will pick up enough of them so when the camera seems uncooperative, you can call its bluff and find a way to get what you want.

There are several stages along the way. First, you will need a clear image of how the camera works. Not part-by-part, but in principle—rather like personality traits. Cameras are actually pretty simple, but they have become surrounded with things that seem to be very complex, like auto focus, for example. The underlying technology is fairly sophisticated, but knowing its details won't get you sharper images—but knowing where to point the camera to focus, will. You won't have to know exactly how every part works, but you will gain an appreciation for when it works and when it doesn't.

PRESSING ENGAGEMENTS

Driving a camera is less difficult than driving a car, once you get past the initial buttonophobia. And the F707 or 717 does have lots of buttons, dials, switches, and controls, doesn't it?

There are two schools of thought on creating controls. One school tries to minimize and combine them; the other school tries to give unique functions to unique controls. Sony's experience with video cameras has led to a rather balanced approach that favors the second school. Some controls could be nested away into menus, but that might prevent immediate, easy access to something. Anything that slows you down will cause you to miss shots, so Sony provides easy access to certain functions that other camera manufacturers miss. Personally, I think the balance is quite good. The buttons are where you need them to be, and with rare exception, they can be mastered in an afternoon of playful exploration.

Every button and control is just a means to an end, not an end in itself. They interact with each other in sometimes unpredictable ways, many of which can be really useful. In order to get the most from them, it will be helpful to discover the principles behind their operation.

The camera manual will tell you what every button does. But it won't teach you exactly when to *use* it and when to *avoid* it, so this text will guide you by pointing to the controls as *functions that bring forth capabilities*.

SONY DSC-F707 + HVC-VCL-MH1607A Wide Converter Optic.

Chapter 2

Digital Fingers

Hands-On Control Essentials

Images are lies. They are flat, two-dimensional representations of three-dimensional events that happen over time. But we love them, because they freeze a point of view, a subject, and a meaningful moment in a convenient sheet of color and brightness, which then can be studied as long as we wish. Images are powerful when they convey emotion, inspiration, and aesthetic messages, and they gain our favor by being authentic elements of our personal lives. They are so much a part of our outlook that as soon as the human brain evolved into self-awareness, preserved images were its immediate product.

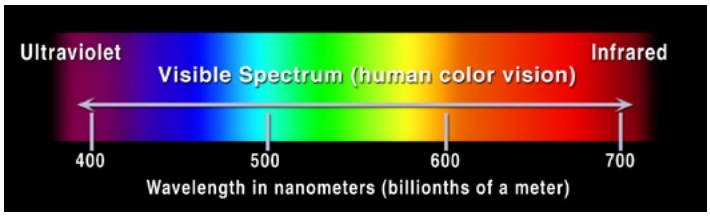
We are the species known as *homo sapiens*, the "thinking human," but we could just as easily have been known as *homo iconicus*, the "imaging human." We alone make images of sounds—letters that pronounce words—and drawings of things living and imagined. For the last 170 years we have been able to grab photons out of the air and solidify them on a page. When we do this, we completely understand that the representation on the page is just a converted graphic effect derived from life, but it lets us see things without the distractions of time and depth. Two-dimensional images will be with mankind forever.

ⓘ = InfoBite

For now, you and your digital camera will be engaged in this special visualization process. As you look at the camera you know that it takes color pictures and it has a lens. The rest of it is exotic technology. In its simplest form, it is a photon-grabbing device that focuses pictures onto the electronic imaging chip inside, then it remembers what it saw. The more you touch it with your understanding and your fingers, the more it will become a part of your ability to speak the language of images.

BASIC IMAGE CLASS

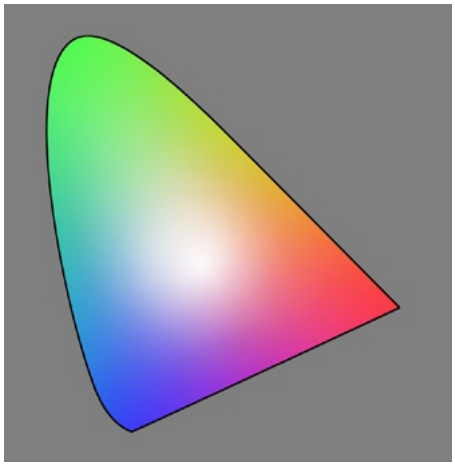
Color is spread across a spectrum with red at the low frequency end and blue-violet at the top end. Images directed to your eye need only Red, Green, and Blue parts to make your eye experience all the rest. Orange and yellow photons do exist, but a mix of red and green photons in your eye will produce the exact same result. Proportional amounts of the three *primary* colors are all we need. Why? Because we have color receptors (*cone cells*) in our eyes that are centered in sensitivity to red, green and blue. But there are no cone cells that only see orange or yellow. It would work, but it just isn't needed.



There are colors we can't see. Infrared is too low and Ultraviolet is too high for our eyes. The sunlight that reaches us has most of its photons in the area we *can* see. Long ago, whenever color vision evolved, the best reason for it was to distinguish different colors of food. Red and yellow fruit are usually riper and sweeter than green fruit. Green plants were usually more edible than tan, dead plants. Our noses were poor judges, but our eyes pulled us toward more nutritious diets. Apes also have well-developed color vision, but they make lousy photographers.

Our eyes also see a brightness range of about a billion to one. Not all at once—that might be painful—but from our most dark-adapted night vision to full equatorial daylight at noon, our eyes are adapted to the local extremes. Our cameras are not. A digital camera these days is doing well to capture a brightness range of 600:1 (brightest to darkest). Your local movie theater shows images with a display range of perhaps as much as 1000:1. Your eyes adapted to daylight are working with about 30,000:1. It's amazing that we see photographs and movies at all.

The 600:1 range of a photograph is the sweet center spot of the brightness range that makes up most of what we observe. Our eyes can see details in deep shadows and highlights much better than any photograph, transparency or print can portray. The sun glint off an automobile window is obvious to our eye but may not appear whiter on a print than the reflection of a cloud on the same window. That glint might be 100 times as bright as the cloud, but its extra brilliance was ignored by the camera almost completely.



The *gamut* of color is defined by the limits of pure, monochromatic photons. The straight bottom of the figure simply sums the red to blue gap, since there are no purple photons. The experience of colors between red and blue is what your brain *thinks* it is seeing.

Human eyes experience a *color* range wider than any film or current digital camera can portray, but here the differences are not as great. The gamut of color, even on a print, is a sizeable fraction of the absolute limits of full saturation. A laser pointer puts out the reddest light your eye *could* ever respond to, and green and blue LEDs closely define the limits of perception for those colors, too. Your eye can see these pure colors over a much greater brightness range than any film or digital camera, but the fact that they're so intensely monochromatic doesn't make intense colors in print or on your computer screen seem drab. Pureness of chroma is different from brightness of pure chroma. Film, print, and digital captures are accurate up to their saturation limits, and those happen well before the limits of our vision. But with even as little as half of the maximum color we are able to experience, a print will seem vivid and colorful in our visual interpretation of it.

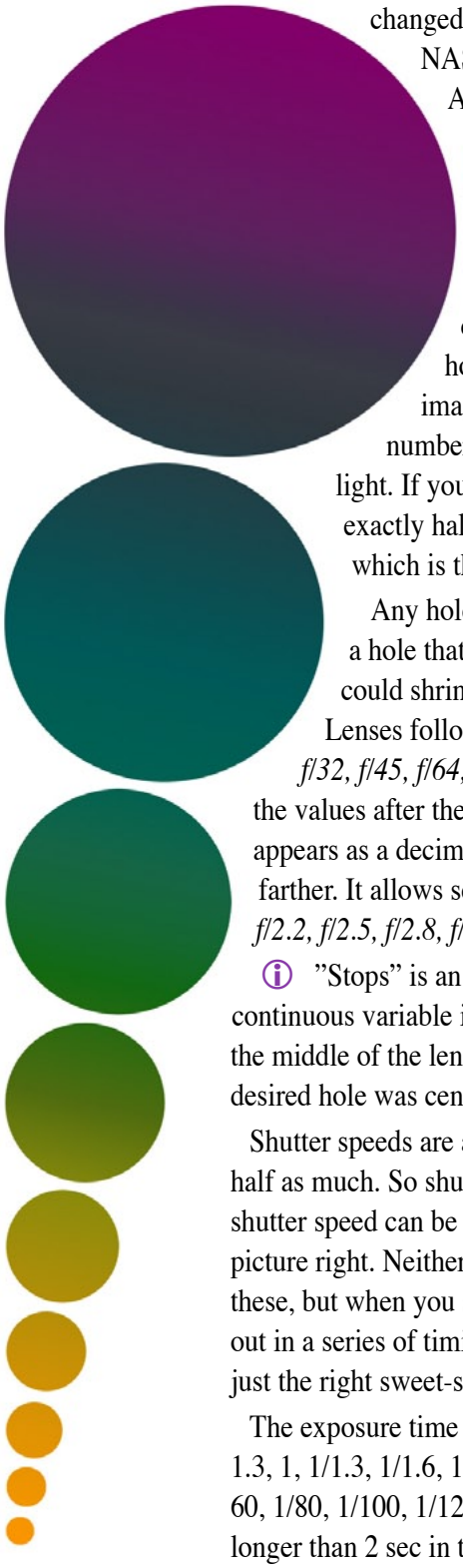
NATURE'S CAMERAS

Our eyes are the model for cameras. Eyes evolved pre-dinosaur, but the plan is the same. A lens bends light into a focused image on the retina. An iris opens and closes behind the lens to control the amount of light. In the Renaissance, a lens was used to focus an image on a white surface in a dark room. This was the Camera Obscura—the *Room of Darkness*—and it peered into the daylight landscape outside of a special dark viewing room. What a novelty. It looks so real! People visit Camera Obscura displays to this day and say the same thing.

In the 1700s, a number of experiments were carried out to try to capture the image cast by a lens. Chemicals were found that could do the job of capturing an image on chemically treated paper, and the images could be viewed under filtered candlelight, but they soon faded away. No chemical combination was discovered that would "fix" them to the paper for many decades. In June or July of 1827, an experimenter in Paris named Nicéphore Niépce got it right. His 8-hour exposure of the rooftops of Paris survives to this day, proof that he was able to halt the fading of the chemical image. Interestingly, the words Photography and Photograph didn't appear until 12 years later.

The original all-day "Niépceograph," 1827.

All photography up until the invention of television, was accomplished with chemistry. Film sheets, glass plates and movie roll film all were extensions of the original idea: better viewing through chemistry. Television cameras made electronic pictures with exotic electron tubes, and that all



Each circle is half the area of the one above. If the top circle were f/1.4, the bottom one would be f/22 and allow only 1/256th as much light to pass.

changed when microcircuits were coaxed into becoming arrays of tiny sensors. The last NASA probe with an electron beam, tube-type video camera was Voyager II in 1979. All of the rest of them have flown with the more rugged and capable imaging chips.

THE *F* STOPS HERE

The iris of a camera is its first means of controlling the amount of light flowing through the lens. That f-number you see describes the size of the iris hole compared to the focal length of the lens. When you read *f*/2.0, it means that the hole is half the size of the focal length (the distance from optical center to focused image). Exactly. So *f*/8's hole is 1/8th of the focal length. The progressive series of numbers used to describe f-stops is based on ratios that let in twice or half as much light. If you had a lens exactly as big across as its focal length, it would be *f*/1.0. If it let in exactly half that much light, the iris would close down to a diameter that was *f*/1.4142135..., which is the square root of 2. Rounded off, it would read as *f*/1.4. Sound familiar?

Any hole that is half the diameter of a previous hole lets in a *quarter* of the light. But a hole that is reduced by the square root of 2 lets in exactly *half* the light. Of course, you could shrink that hole by an intermediate amount and get *f*/1.1, *f*/1.8 or any other ratio. Lenses follow one-stop jumps in the series, *f/1.0, f/1.4, f/2, f/2.8, f/4, f/5.6, f/8, f/11, f/16, f/22, f/32, f/45, f/64, f/90*... The fractional values are rounded down. *F*/11 is really *f*/11.313708… but the values after the decimal don't affect the image enough to be reported. Now you know why *f*/5.6 appears as a decimal. About half of *f*/11. The F707 or 717 takes the normal f-stop markings a step farther. It allows settings in 1/3 f-stop. At wide angle, its f-stop settings can be chosen to be *f/2.0, f/2.2, f/2.5, f/2.8, f/3.2, f/3.5, f/4.0, f/4.5, f/5.6, f/6.3, f/7.1, f/8*. Lots of control there.

ⓘ "Stops" is an odd word, isn't it? It comes from the early cameras in the 1800s before the continuous variable iris was invented. A plate of metal with different size holes was slid through the middle of the lens to create the iris setting. Dents in the plate *stopped* it under a spring when the desired hole was centered. Stops. Photo trivia.

Shutter speeds are also measured in "stops". They often follow the same general rule of twice or half as much. So shutter speeds of 1/60, 1/125, 1/250, 1/500, 1/1000 –sec are commonly seen. But a shutter speed can be anything that works. 1/83 sec is not inappropriate if that's what it takes to get the picture right. Neither is 1/972 sec. The camera's exposure computer will often create odd settings like these, but when you set them manually, the opportunities are more limited. The F707/717 lays them out in a series of timings that are 1/3-stop apart, that fine division being more appropriate to achieving just the right sweet-spot exposure for a digital image.

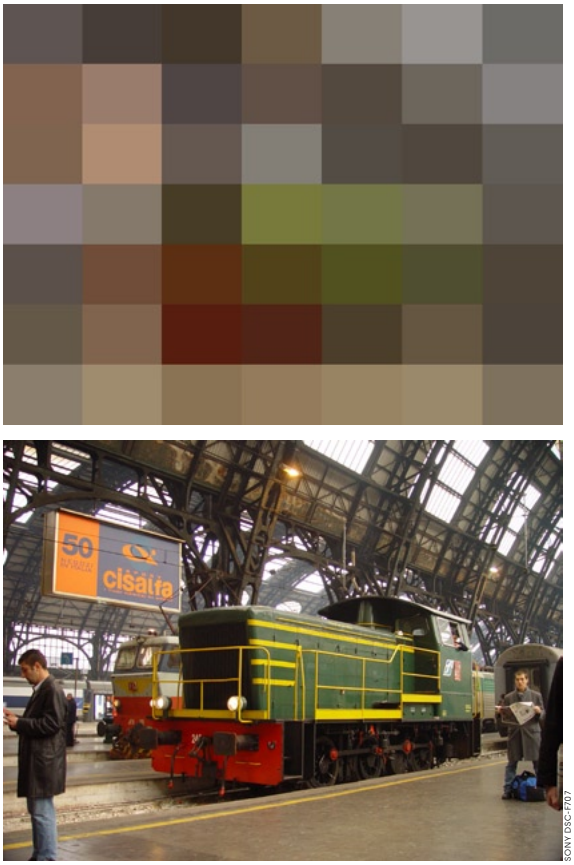
The exposure time series that can be manually set is **30, 25, 20, 15, 13, 10, 8, 7, 5, 4, 3, 2.5,** 2, 1.6, 1.3, 1, 1/1.3, 1/1.6, 1/2, 1/2.5, 1/3, 1/4, 1/5, 1/6, 1/8, 1/10, 1/13, 1/15, 1/20, 1/25, 1/30, 1/40, 1/50, 1/60, 1/80, 1/100, 1/125, 1/160, 1/200, 1/250, 1/320, 1/400, 1/500, 1/640, 1/800, and 1/1000 sec. Speeds longer than 2 sec in the F707 (shown as **bold** type) are treated differently from the others. A special noise reduction mode kicks in when they are chosen. More about that, later.

METER MADE

A light meter is an essential part of accurate exposure. The first ones were invented by an instrument company in the 1920s. These were made by Edwin Weston (not to be confused with Edward Weston, the photographer), and they changed photography forever. Film negatives have latitude—a tolerance

for over or under exposure. Light meters allowed photographers to get the exposure right the first time, and when transparency film—slides—became popular, the exposure was more critical.

Digital images are more like slides than negatives. They need the exposure to be right on the money. To better judge the exposure, the Sony DSC-F707/717 uses a multi-segment exposure system. It reads the image with 49 zones (7 x 7) of the imaging chip. Each zone on the image chip is about 360 x 270 pixels in size. Not every sensor in each zone is used to make the exposure reading, but several hundred in each zone are polled for the estimate to form an opinion about the relative brightness. All 49 separate readings are further gathered together and considered in a novel way. Instead of simply adding them all together and dividing by 49, the exposure computer takes a look at each one and compares it to its neighbors. Groups of zones that agree closely are regarded as more valid than an isolated zone that is far brighter or darker. No zone is ignored, but groups are given a greater emphasis than single zones. It's like having 49 spot readings instead of one big general reading.



Two of a kind. The top image is an average of the light values in 49 zones of the bottom image.

Ansel Adams, the renowned American photographer, got together with Minor White, another renowned American photographer, in the late 1940s and early 1950s and together they created the Zone System, a technique for determining optimum exposure. It used a series of spot readings to derive a consensus as to what the exposure should be and what the contrast range of the result should end up looking like. Sound familiar? Today digital camera designers are realizing that a large number of small readings is better than one big generalization.

WYSIWYG

The WYSIWYG acronym is relatively recent. "What you see is what you get," means that something shows you a faithful result—usually on your computer screen—before you commit to producing it. Digital cameras do this with photography if the monitor is up to the task. For owners of the F707 or 717, the larger exterior LCD shows you the picture as soon as it is taken. What you see is what you got. But the 707/717 goes a major step beyond viewing from without. The articulated body prevents handy through-the-lens *optical* viewing, so Sony has borrowed another of their successful experiences from its video products and mounted an electronic viewfinder to the swiveling body. It's an electronic SLR! With your eye up to the eyepiece, the camera feels more like film cameras you have known.

The body swivels in relationship to the lens. This is not a trivial idea. It's impossible for a film camera to articulate this way, but with digital cameras, the rules are all different. The viewing and shooting are no longer linked by optics—just logic. Some future camera may have a Borg-like eye viewer on your head while the camera is positioned at arms length, but I digress…

The swivel lets you use the internal screen at a cocked angle. You can look down into a camera that is looking out. A sturdy detent clicks the body and lens upright, too.

With the swivel, the large exterior LCD pivots for easy viewing above and below the center line of the camera. You can hold the camera above

Swivel for otherwise "impossible" shots.

your head at arms length and see the LCD well enough to compose an image. You can hold it in your lap and shoot straight forward. Or you can hold the camera straight out in front of you and shoot.

EYE'S HAVE IT

As a glasses wearer, I'm familiar with the limitations of close and far focus. As a camera user, I'm familiar with the problems viewfinders can create, and as a person who's eyes are over 40 years old, I'm an observer who can report the general trend of eye development over the years of one's life. Youth gets the good eyes. A kid 8 years old may be able to easily focus 4 inches in front of her nose. The colors they see are more vivid than those seen 30 years later. The brightness range they experience is a stop or two wider from glaring daylight to fully adapted night vision. But generally, 8-year olds are not deeply involved in digital photography. Meaning, these cameras are not made for them.

VIEWFINDING

Aging eyes need help. The internal *Finder* (also *EVF* for Electronic View Finder) allows you to focus to taste, but you may need glasses if you are over 40 for that external *LCD* (for Liquid Crystal Display). It's less than two inches across, and you probably won't like using it at arm's length. Full sunlight will wash it out, but any shade is generally enough to make it useful for framing. Sony has coated it with an anti-glare reflection surface the way they coat the flip-out monitors on their video cameras. That keeps your own sunlit face from mirroring back to you outdoors and makes the image much easier to see. All digital camera makers should follow Sony in this regard.

Shoot with the internal Finder for intuitive, SLR-like handling.

The alternate viewing method of the Finder provides the ability to peer "through" the camera in any light that forms a picture. Outdoors, this creates a nice dark viewing theater for one eye. Of course, Sony has known how essential this is for video cameras for a long time, and it's a safe bet that they will incorporate the idea in many cameras to come. It's one of those smack-your-forehead, "of course!" ideas that other manufacturers are waking up to, as well. But since the interior image is not as clear as the full camera image (nor is the exterior LCD), it's not the same as an optical SLR. You have to take the picture seen here with a grain of salt.

First, it has a slight time delay compared to reality. This is because the imaging chip has to create an electronic image and pass it to the viewing screen for you to see. That takes a fraction of a second, about 1/15th, so you are always viewing the world a bit in the past. Getting used to this time lag is not hard, and simply being aware of it is the first step to compensating for it for critical moments. Like the shutter button half-press/full-press technique, anticipating the future by 1/15 sec is not hard at all. Little League batters do it all the time. The same eye/brain coordination it takes to catch a fumbled object before it drops out of reach is the same eye/brain skill it takes to press the shutter button the rest of the way as the shot comes together. Practice with it on anything that moves.

Call your dog, or your kid, or your friend and try to get that expression when they first look up. Try to catch people walking in mid stride, just where their legs are farthest apart. Make a game of it. The more you get used to the camera's behavior, the more you will be the master of all you survey.

The second characteristic is that the coarser image on either view screen isn't super sharp for critical manual focusing the way it is in a fully optical SLR. Photographers have been dealing with the oddities of focus since the dawn of photography. Big cameras in the 1800s used a back with a frosted sheet of glass for focus using the open lens. Ground glass acts as a sort of rear-projection screen. That's why you see old—or even modern—large-format cameras being focused under an opaque cloth. The photographer uses the cloth to keep out stray light as (s)he focuses and frames the shot on the ground glass. What a hassle, but the results are very accurate.

With the Finder image being made up of 180,000 "dots" of color (the external LCD is about 123,200 "dots" but looks as sharp) focus is not as exact as it is for optical SLR viewfinders. Auto focus does most of the work but you can elect to use a manual focus option and now the image on the screen is your only guide.

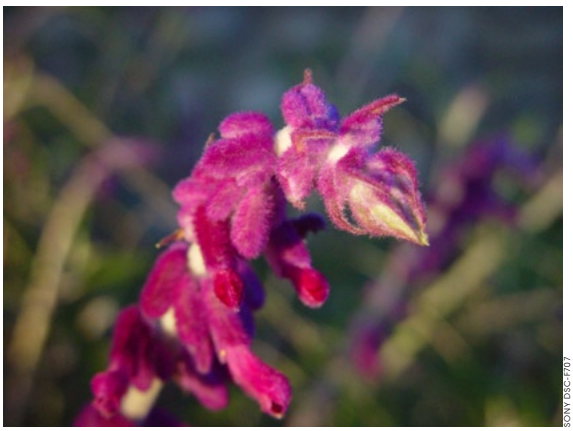
ⓘ Photographers since the days of large-format cameras have known that the best way to zero in on sharp focus is to rock the lens back and forth through the sharp focus point to get a feel for what equal amounts of blur look like on either side of the best focus zone. Having 'felt' the range on either side of perfect, one's fingers then find the mid point between too near and too far. Voila! Sharp focus.

ⓘ This zoom lens has an endearing quality. It stays in sharp focus as it zooms from tele to wide. Meaning that you can zoom in, adjust focus manually, then zoom back to frame your shot at a wider setting confident that the lens has retained critical focus. Videographers use this technique so often that it is their standard procedure. The two-speed zoom control helps you to acquire focus and re-frame quickly and precisely.

FOCUS THEFT

The auto focus system and zoom system in the F700's are fast and silent. Among the fastest seen in cameras of this genre. Most of the time the auto focus is admirably accurate, especially at long focal lengths, but several things can ruin focus. The good news is that you can do a lot to prevent focus errors, just by being aware of things that can cause them.

The Sony F707 and 717 focus by detecting contrast between adjacent pixels in a zone primarily at the center of the image. The edge of a very light/very dark transition is the first thing it looks for, followed by less contrasty transitions. Low contrast details *can* do the job, but not if there are higher contrast areas in the focus zone to steal the focus away. High contrast, distant detail can pull the system off less contrasty—but more desirable—nearby subjects. Since focus locks in at the half-press point of the shutter button, there is your first line of defense against focus theft—detecting it before you complete the exposure.



Detailed backgrounds can steal the focus away from your subject. The remedies include better centering in the focus zone during the half-press or manual focusing.

ⓘ A non-intrusive quartet of corner marks shows you the area of auto-focus targeting on the view screen of the 707. It's about 20% x 22% of the shot, and although it looks rather prominent, it really represents the center 5% of the area of the picture. The corner marks show up when auto-focus is operating, and then only when the view screen graphics are switched on.

ⓘ The F717 has a five-area (selectable) focus zone. Highlighted brackets let you know which is active at any time. The Jog dial quickly selects among six choices of selective focus coverage.

DSC-F707 controls are easy to find by feel.

ⓘ Pan and/or zoom and/or select the focus area onto any nearby subject that is at the distance you need. Half-press the Shutter button to lock exposure and focus. Pan back to your composition before following through with a full-press of the Shutter Button to complete the exposure.

ⓘ For really difficult situations, try this: Frame the subject the way you wish for the final shot and press the AE-Lock button on the lens barrel. The *exposure* is now locked at this point and a green AE shows up on the viewing window. Now you can zoom in to your subject, use the half-press focus lock, and zoom out to maintain focus while framing the final shot. AE-Lock lasts for only one shot when used this way.

ⓘ Sometimes nothing seems to help. For those times, there is manual focus. When you are looking for the picture, you don't have time to look *at* the camera. Sony has gone to a lot of trouble to place controls where they can be felt in without causing tactile illusions, but you must study your individual 707 or 717 camera by *feel* to learn how to work these controls by touch alone.

ⓘ Always switch Manual Focus OFF when you are done with it.

The holographic pattern projection solves focus in total darkness.

NIGHT SPOTS

The camera can focus in the most extreme darkness imaginable—zero light. But only if the laser holographic projector is active (*Set Up* > *Camera* > *Hologram AF* > *Auto*). When light drops below about one foot-candle, this feature activates automatically and casts a bright red laser hologram cross-hatch on your subject. Even in total darkness, the camera can focus on the nearest object that intercepts the pattern.

There should be a medal for originality of product features like this. Its implementation on the 707/717 is well designed and supremely useful.

ⓘ The laser is safe for eyes, but using it may not be smart if you are taking pictures under security-sensitive conditions. Somebody might get the wrong idea. You wouldn't want to be wrestled to the ground by the Secret Service, eh? Remember that your subject is only aware that this *thing* you are holding just crossed their line of sight with a bright red laser pointer, ...or *was* it?

DSC-F707 controls are identical in function to the F707's with the addition of zoom via the manual focus ring.

ZOOMING ROCKS

ⓘ If you hold the lens with your left palm towards your face, the large zoom rocker—and even its two-speed zoom thresholds—will become obvious and easy to feel with the pad of your left thumb. This is almost exactly the same left hand position a photographer shooting with a tele lensed SLR would fall into.

That rocker switch doesn't need to have two fingers on it, just one thumb. With almost no practice at all, your thumb will find the center seam of the switch and distinguish between the zoom wide top toggle (rear-most on the 717) and tele zoom bottom toggle (forward on the 717). Play with this a few moments until it feels natural.

ⓘ Your fingers will get it wrong for the first few days, because our bodies have no built-in, intuitive sense of what zooming in and out should feel like, so you will have to teach your fingers how to feel zoomy.

The thumb is the most intelligent finger on your hand, although touch-typing and finger painting would be poor examples of its cleverness. But hold a cell phone in one hand as you dial, and your thumb will become an acrobat.

Once this barrel grip has been achieved, the right hand assumes a far more conventional grasp of the back right side of the camera body.

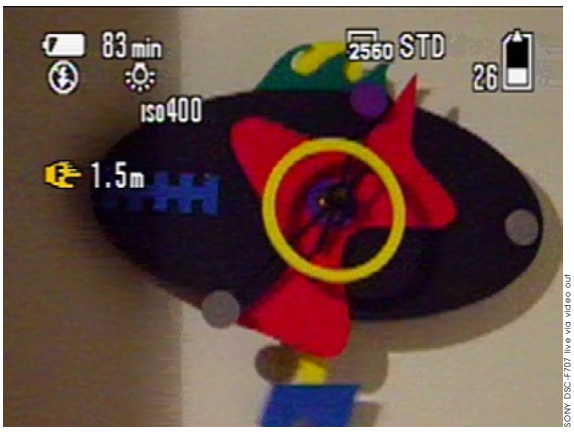
ⓘ If you bring the camera up to your eye using the electronic viewfinder, you can no longer see what any of your fingers are doing. That's why you need to learn the controls by touch alone. It may be a stretch of the imagination to think of working a camera—of all things—by Braille, but that's what's called for.

ⓘ (For F707 only) Want to give your thumb a trick? See if you can train it to work only the bottom part of the rocker switch while achieving both zoom-in and zoom-out operations. Using the tip of your thumb against the very bottom-most surface of the toggle, pry the switch up to cause a zoom-out action. It takes some practice—and isn't for all thumbs—but if it works for you, it can save a bit of ergonomic effort. No similar trick is needed with the zoom rocker of the F717.

Near the zoom rocker is the *Focus Switch*. Forward of it on the 717, but rearward on the 707. Move it forward to engage completely automatic focus, or slide it backward to engage manual focus. On the 717, forward turns the focus ring into a zoom control. Your fingers will learn all this one in no time. If it helps, think of moving the switch back towards your head as moving the focus option closer to your brain for direct, personal intervention.

FOCUS MANUAL

Farthest forward is the large darker knurled metal focus ring. To get any benefit from this, one must be in Manual Focus mode, otherwise it turns, but it accomplishes nothing. The ring has that smooth-mechanical, liquid-viscous feel of a fine lens's focus ring. But it does not directly connect to the inner mechanics of the lens elements.



The focus ring feels mechanical, but it is a data control—*focus-by-wire*. As you turn it slow, medium, and fast, the amount of movement you've performed is reflected proportionally in the focus adjustment. When you stop, focus stops. It can fool you at first, but when you focus to infinity, the focus ring does not stop the way a purely mechanical ring would. The ring turns, but actual optical focus is as far as it will go.

As soon as you twist counter clockwise, focus is instantly engaged in reverse, and the internal elements obey again, focusing closer. Any overshoot made by your fingers won't become part of the reverse focus twist. This can fool you if you don't expect it. The manual, focus-by-wire system is an idea whose time is now. Implementation of it in these cameras is exceptionally well executed.

ⓘ As you move the focus ring in manual focus—surprise!—the image *jumps* at you. This is the special focus magnifier mode. The central cluster of imager sensors become active in the middle of

the imaging chip, delivering a double-size enlarged view of the middle of the scene. When you stop moving the focus ring, the enlarged image jumps back to normal. If you don't like the feature, you can shut it off in the 707's menu system under *Set Up > Camera > Expanded Focus > On/Off.* The 717 puts the same selection on *Camera2* page.

White balance done wrong (lower left) \ right (upper right). It's easy to miss the color on the LCD. Nice to know you can fix it later.

BUTTON WHOLE

As your thumb slides back to the rear part of the lens barrel, three buttons can be felt. They are the *Auto Exposure Lock, Meter Select* and *White Balance Selector*. The last one is actually two controls, the White Balance *Selector*, and the Manual White Balance *Perform* button next to it.

The AE Lock, not surprisingly, locks the exposure on demand. Point the camera at the subject you wish to lock onto and press. An AE icon now shows on the Finder or LCD to inform you what you've done. From this point on, *only* the very next shot will use the locked exposure. But, if you hold the button *in*, you can shoot a series of shots with the same exposure.

Next back, the Meter Select button gives you quick access to the three types of meter in the F707/717; the *Multi-pattern Meter, the Center Weighted Meter* and the *Spot Meter*.

ⓘ The Meter Selector has a raised dot of metal in the middle of the button—a tactile clue to let your finger know where it is as you feel for the right control. It is one of those things that must have seemed like a Good Idea at the time for the button designers, but the bump is too small for most fingers to detect in an unambiguous way. Counting the switches from the end of the row is a more positive way of determining which switch is which. Perhaps you can sense the bump with your fingernail.

Since the Multi-pattern Meter is a 7 x 7 grid of sensor areas behaving like a cluster of spot readings, an intelligent algorithm selects and combines them into a well-crafted exposure estimate. Use this meter most of the time, and you will end up with many good images.

The Center Weighted Meter measures light within a circle as tall as the narrow dimension of the image. It's like a big, fuzzy spot meter with subject matter near the edge getting less respect than the things in the very middle.

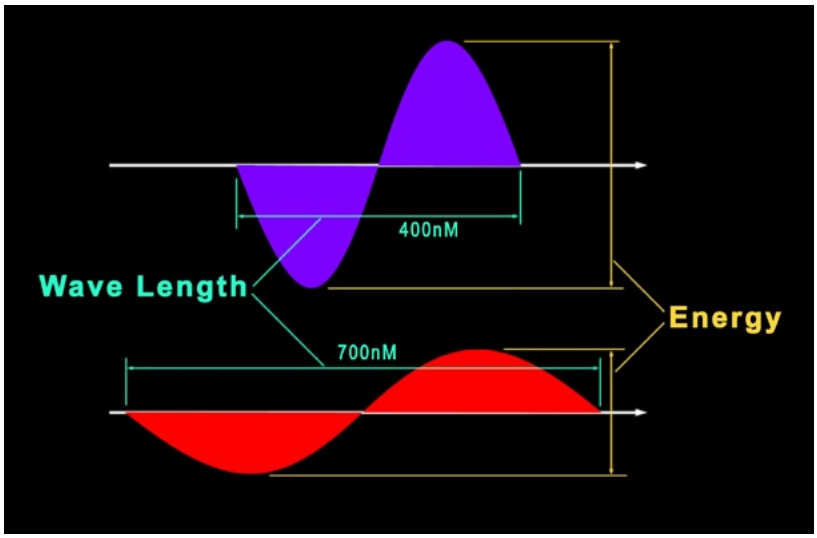
The Spot Meter sees only a small area in the very middle of the image. The sensitive area is *tiny* and reads a square area about 7% of the image height. A small cross in the middle of the image shows up on the Finder or LCD to show you where the spot is measuring. The measurement spot is only about the size of that center cross (indicated left).

ⓘ Spot metering is the perfect meter to use when the illuminated subject you wish to capture is surrounded by too much or too little light. A friend standing with their back to an open window, for instance. It also gives better exposures for actors in stage lighting where a figure may be surrounded by large expanses of darkness.

ⓘ The F717 has an on-screen histogram much like the histogram in the *Levels* control in Photoshop except this one is alive. It's an especially good quick reference of exposure when you are in manual exposure mode and lets you know the relative population of pixels across a tonal range. Darker pixels on the left, lighter on the right. Most "good" exposures look like a mountain range with a profile that tapers off at the ends, but that's not always the case. Bright subjects *should* bias the graphic toward the right and dark subjecs should show peaks on the left side. The Photoshop version is much more accurate, but this is a helpful tool when combined with experience.

BALANCE

The 707's button that is closest to your nose is the White Balance button. It steps through three basic color balances, Automatic, Daylight, Incandescent and Manual. The F717 adds Cloudy and Fluorescent. In order to use White Balance most effectively, you need to brush up on a little photographer's physics.



COLOR PHOTONS

I love photons. They weigh next to nothing, are as plentiful as can be, provide useful information about their origins and they never wear out. Not only that, but they are small, portable, simple and very flexible. When they smash into something they don't really stop, they're *absorbed*, which is a bit different. In all, they are the easiest sub-atomic electro-magnetic phenomena to play with, and they can be very playful.

Photons have color. Every single one of them is a solid, pure, vivid color, too. There are no black, white or gray photons. All photons of the same color have exactly the same amount of energy. So when something is *bright* it is only because there are *more* photons, not bigger, stronger ones.

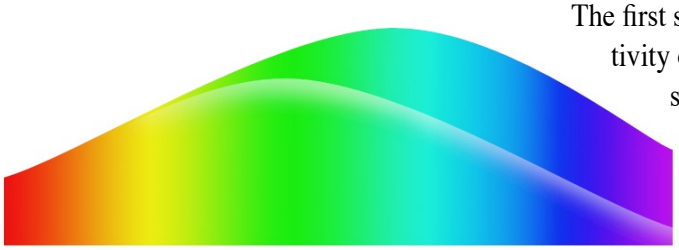
Here's an interesting factoid: How many photons reach your face from the Sun at noon, out here at Earth's orbit? I asked this of a scientist at JPL, and he said that based on the amount of energy represented, a good estimate is 4.14×10^{15} per square millimeter, per second. Over four quadrillion! That is a number so large, it boggles the imagination, let alone the mind. Written out it's

4,140,000,000,000 per second per mm²

Another way of putting it into perspective is this; if you ran that many 30-second TV commercials end to end, it would take more time than the entire age of the universe to date!

Because each individual photon is one wavelength long, it MUST describe a pure color, but on the average, light puts out photons spread evenly as Red, Blue and Green—and every wavelength in between—giving the impression of white due to their relative statistical balance. In practice, Incandescent light has a higher proportion of red and orange photons and fewer blue. Daylight has significantly more blue photons. Your eye adjusts to ambient color much faster than the camera does.

An adjustment to the camera is needed to make sense out of light sources like this, and the F707/717 provides three methods of adjusting the camera's proportional response to these different balances of colored photons.



Color temperature is a term linked with the idea of a glowing, hot surface. The higher the temperature, the more high energy photons are emitted, and those are from the blue end of the visible spectrum. Light from the taller distribution curve looks overall bluer to your eye and to your camera.

The first system, automatic color balance, tries to adjust the color sensitivity of the camera with an educated guess. A large number of color sensors are polled, and the white balance is adjusted to represent the result as a middle grayish average. If you shoot a white wall, or white marble statue, the tones will look acceptably real and neutral in color. The camera knows that blue sky can easily be present in a shot, so if it sees a *contiguous* expanse of blue, it does not overcompensate by warming up the other parts of the scene.

Auto white balance attempts to peg the relative color of the scene along the Kelvin scale of plausible color distribution. The Kelvin scale is made of Celsius (Centigrade) temperatures measured from *absolute zero* (minus 243° C) upward. On this scale, daylight is 5,800°K. Incandescent lamps are about 2,800 ~ 3,400°K. The lower the °K, the warmer and redder the image. Actually, there are just a greater proportion of red, orange and yellow photons than cyan and blue ones. Measurements expressed in Kelvin° tell us where the center of a bell-curve of photons is along a heat scale from a glowing body like the white-hot tungsten of an incandescent light bulb, or the fiercely hot photosphere of the Sun. The outer visible layer of the Sun, being hotter than the surface of a tungsten filament by a couple of thousand degrees C, throws off more short-length photons—the bluer ones—than does a light bulb.

Auto white balance can be fooled by colored objects in the shot. The warm glow of sunset may be detected by the auto white balance system and be compensated towards blue. That would tend to neutralize much of the rich reddish color you would get with daylight (Fine) white balance.

ⓘ For good sunset colors, use the daylight white balance setting.

The second system, factory presets, let you select daylight and tungsten light sources. The flash on the F707 is balanced for daylight color, so daylight white balance is preferred for it, too. When you move indoors and shoot images under studio lights—incandescent sources including tungsten-halogen lamps—pressing the White Balance Selector button rolls through the choices.

ⓘ The best shots for incandescent lighting may not be obtained by auto white balance detection. Use the *Incandescent* setting whenever you can.

The third system is more interesting, by far. It is the selection of Manual White Balance and it will cause the camera to get better color on cloudy days, under stage lighting, in mixed light, in unusual light and much more. It is one of those things worth playing with until you get good at it.

WHITE BALANCING ACT

Most digital still cameras don't share Sony's awareness of the importance of fast manual white balance selection. Probably because they are made by manufacturers who have a long history with film. White balance is locked into the film type. One buys daylight film for outdoor shooting and incandescent balanced film for shooting indoors with tungsten lamps. With color negative film, the white balance is not as critical, since heavy filtration adjustments for printing are very common to every shot. The film, although nominally white balanced for daylight and flash, can be corrected for shots made under tungsten lighting—or candlelight, for that matter—and produce nice-looking images.

Many digital camera manufacturers have missed what *every* videographer knows; all lighting situations are different, so the "right" way to control the color of most scenes is with frequent manual white balances. This is very important in mixed lighting situations. Where cool sunlight streams into a room illuminated primarily with a mixture of fluorescent and incandescent lights, there's no conceivable factory preset for such a situation. Yet our world is filled with impossible-to-predict lighting like this. You could trust the shot to Auto White Balance and be *close* to optimum, or you could perform a manual white balance and take control of the situation.

In almost every mixed lighting situation, some object is neutral gray or outright white. A shirt, a business card, a newspaper—anything that does not have a predominant color-cast—will work. Point the camera at the white object (don't worry about black type on a white page) and press the Manual White Balance Select button. A small icon will appear on the LCD or Finder screen. Drop your thumb tip down lower on the barrel and press the smaller button. That's the *White Balance Perform* switch. It will cause the White Balance icon to blink for a few seconds, after which the image in the viewfinder will change to a more pleasantly–colored version of your surroundings.

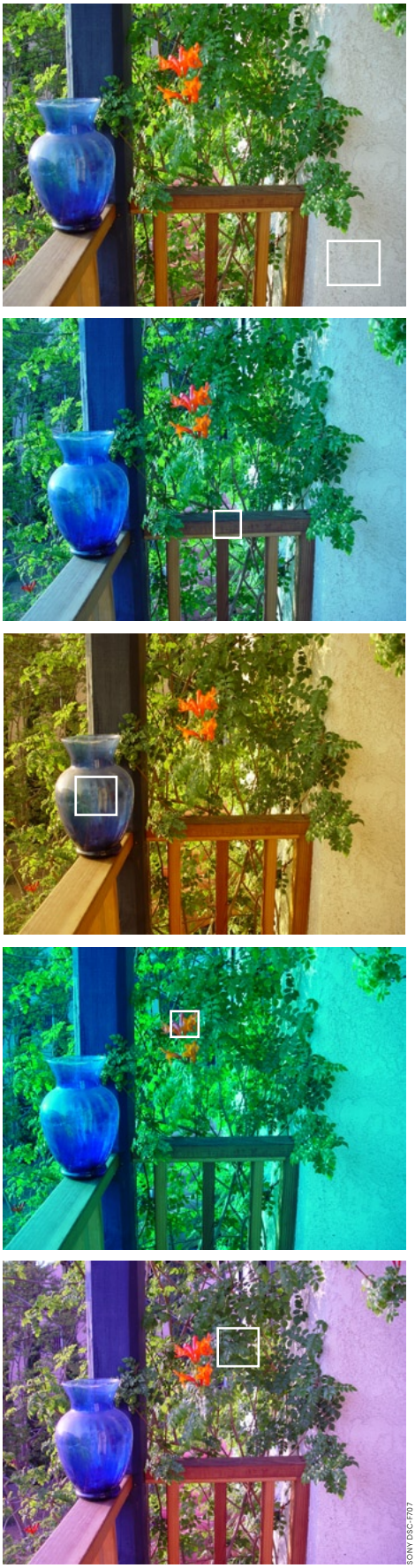
ⓘ But don't rely completely on the Finder or LCD to be a test of true color. Images can look quite imperfect there and still deliver white balance perfected images on your computer screen.

When the White Balance Perform button is pressed, the camera assumes that it is in the hands of somebody who knows what they're doing. It assumes that the brightest thing it sees is neutral in color—that there is no color tint to the subject. The RGB values of the image are immediately indexed to a new "zero point" in the camera's memory registers. The amount of Red, Blue and Green at every point in the imaging chip's response is adjusted to equal. The camera does the math to portray bright and dark grays as neutral, too. In a sense, the camera is going, "Oh! So *that's* what white is supposed to look like. Whatever you want..."

ⓘ If you get the wrong white balance, simply press the White Balance Perform button one more time to repeat the manual white balance adjustment. The icon will blink again and the color of your subject will appear more neutral.

ⓘ Try white balancing on a number of nearby subjects. You will notice how mixed views that include many different-colored items will seem to produce a good result in spite of the mixture of subjects. The white balance the camera is interested in is usually tied to the color of the largest subject in the scene, but when you show it lots of things, it averages them out and picks a mid-point.

ⓘ Here's a comparison (right) of white balances derived from subjects within a scene. The white wall gives the best *true* color version, but notice how warm



The camera's extended white balance range allows you to use colored objects as white balance targets. The square in each image shows the area used to white balance that shot. Pick the color *opposite* the effect you want, and the camera suddenly behaves as if a color filter were over the lens.

wood, blue glass, red-orange honeysuckle and green foliage produce extremely different results. The shots were made half an hour before sunset, but white balancing off the white wall compensated for the rather golden light.

Inherent in the Manual White Balance is an extraordinary bonus capability. If one points the camera at something that is NOT gray or white, the camera has no way of knowing that. Meaning, pointing the camera at a pastel blue Post-It™ while performing a manual white balance makes the camera think the local light has more blue in it. It will adjust to what it sees and images taken in that local light will now look tinted warmer, more yellow-orange just as it did when the blue sky was used as a white balance target. Similarly, a pastel pink Post-It™ will produce cooler, bluer results.

ⓘ The eBook cover has two sides. If you open the plastic case and lay it flat, you can slide out the paper cover from behind the clear plastic wrap. Flip it over and you will be looking at a number of color and black and white patterns. Slide the paper back into the case and the colors can all be seen through the clear plastic. One side shows 12 patches of pure colors. These are the iNovaFX White Balance color filters, and they work with the Sony F707/717's manual white balance system. Simply point the camera at the color that is OPPOSITE the color filter you desire, and perform a manual white balance. The camera will compensate for that target color and cause its *opposite* color to appear in the picture as if you had mounted a glass color filter. Here are color filters that weigh little, can't scratch and don't take fingerprints.

ⓘ A file on the CD allows you to print out a copy of this color filter chart so you can fold it up—or cut it up—and put it in your wallet or camera bag.

iNovaFX iCFWarmer/ Cooler Photoshop Actions in action. Cooler two clicks / Normal / Warmer two clicks.

Occasionally you will shoot a picture with the wrong white balance selected. For whatever reason, you will shoot images outdoors with Incandescent white balance selected or the opposite. Special iNovaFX Photoshop Actions are on the CD. These instantly convert a color mistake into an image you might never suspect was shot wrong. They only work with daylight images shot with Incandescent WB selected, or incandescent images shot with Daylight WB selected, but they perform complex color and tonality corrections to rescue as much of the range of the shot as possible. Three variations of each one are available giving you a choice as to which best suits the shot in question.

ⓘ For images that seem just a *little* too cool or a *little* too warm, special iNovaFX Photoshop Actions are provided. These are in the iCFWarmer/Cooler set. They operate quickly and *symmetrically*. Two clicks warmer followed by two clicks cooler will bring you back to the same relative color place, but you can overdo it. Each click takes its toll. For best results, try to limit your adjustment with these filters to about three clicks in a single direction.

PRESSING ENGAGEMENT

The right hand falls naturally into gripping alignment with the controls of the camera body. Here, both thumb and index finger are engaged with the buttons and switches, while the three remaining fingers grip the body and support the stability of the camera.

Your index finger performs the role of triggerman. It falls naturally on the shutter button and will soon learn the value of the half-press/full-press release technique that keeps you sane about digital camera "shutter lag". I'm constantly amazed at the number of people who encounter digital cameras and expect them to perform the way an older all-springs-and-levers mechanical film camera behaved. The Sony DSC-F707/717 has very good reaction time with its fast, silent auto focus and quick internal systems, but it is a *live-imaging* camera, so it needs to perform a complex procedure before the shot can be taken.

The imaging chip is being used—live—to capture the image for Finder or LCD. It abandons live mode and conditions the imager for a fraction of a second while the chip is prepared for the Big Exposure. This generation of imaging chip doesn't run every pixel at full-motion speed, so it uses only a small percentage of the sensors for live viewing.

Changing from one mode to the next is brief, but not instant, so a certain lag is unavoidable. It's amazing that they can do all this in about one-tenth of a second.

MORE OR LESS

Next to the shutter button is the EV+/- Button. It looks like a miniature shutter button in a similar silver satin finish. Press it once and an EV icon appears in bright orange on the upper right of the LCD or Finder. As long as that icon stays *orange*, it is adjustable by your index finger with the gear-like *Jog dial* just in front of the Shutter Button.

ⓘ The EV+/- option stays on—shown as yellow—as long as the camera is awake, but you can turn it off—shown as white—by pressing the EV+/- button again.

ⓘ These three controls, Shutter, EV+/- and Jog dial, are under your index finger almost all the time as you shoot. Practice working with them. It takes proficiency to understand their full impact on an image, and playing with them will help build speed into your finger habits. Making EV adjustments is common. You will know when you have achieved a new level of habitual control when you can't remember if you made an EV adjustment to your last shot, or not.

The Jog dial is used frequently. It steps through many options in combination with other operational modes.

Sony calls it a Control button, but it's rather like a flat joystick.

THUMBS AWAY

The large circular switch in the upper right of the camera back is the *Control button*, which behaves in interesting ways depending on what mode the camera is in at the time. With it, you can scroll through menu items, choose functions and jump between options. It has the novel attribute of being

able to select left, right, up and down in the manner of a video game control, but you can press it straight into the camera, making it an intuitive punctuation to ratify a menu or control selection.

During shooting the Control button puts you in touch with four vital functions.

- It selects the flash mode and/or switches the flash completely off.
- It puts the camera into Macro mode when you need to focus very close.
- It activates the Self-Timer function.
- It brings up the most recent image for instant review.

When you review the most recent image, the zoom magnification controls of the zoom lens behave like you might expect. They zoom into the shot allowing an up to 5X magnification of the image. As soon as you zoom in by any increment, the entire Control button becomes a flat joy-stick that allows you to scroll up, down, left, and right over the magnified image. With a 5X zoom into the shot, a full-frame image will display a portion of the scene that is only 512 x 384 pixels of the original.

SWITCH OF THESE?

The most often used switch on the camera body—other than the Shutter Button—may be the *Finder/LCD Switch*. It's the switch that selects between the internal Finder or LCD for viewing the live camera image.

ⓘ As you get used to the camera, you will be switching between internal Finder and LCD frequently. When ambient light levels are high, the Finder will help, but if you wear glasses, you will not be able to seal the view to your eye for the clearest viewing. The diopter adjustment lever above the viewfinder eyepiece will let you fine-focus the Finder image to your naked eye, so in some lighting situations, you may have to put your glasses aside and use this option to insure an easily viewable image.

Shoe-in (-frared). The vignette is from the narrow IR emitter coverage in total darkness.

SHOT IN THE DARK

Completing the shooting controls is the *Exposure Mode selector*. This three-position slide switch will most often be at its center, normal position, giving you color images. If pulled toward your right palm, it will enter the black and white world of the IR *NightShot* mode.

This mode operates in several different ways, depending on other choices you have made. It can be used in total darkness, too, since the camera has two infrared light *emitters* built into the camera face next to the lens. In total darkness, you will see these emitters glowing very dark red, but only when in the NightShot modes. Under extreme conditions of zero light, these emitters provide enough illumination to capture an image.

At ISO 100, the emitters only illuminate the nearest 3 feet (1 meter) from the camera. At ISO 200, the range increases to 5 feet (1.5 meters) and at ISO 400/800, the range of emitter illumination stretches to about 7 to 10 ft. (2 -3 meters). But the NightShot mode really comes into its own when

the camera is set to *ISO > Auto*. Now ISO is free to roam up to 2500 depending on the ambient illumination of the scene. That puts it in range of moonlight, and the IR emitters will be useful on objects 20 feet (7 meters) *or more* from the camera. The characteristic greenish glow of a night-vision scope adds to the drama of this viewing mode.

Infra Red Eye...

ⓘ The NightShot IR mode is not the sharpest pencil in the box. The imaging chip derives a luminance-only image from an array of color-filtered sensors, so compromises in processing the image are inevitable. The IR emitter coverage is concentrated in the center of the field of view. That's good for distance and telephoto framing, but it makes a distinct hot center in wide shots. The best IR sharpness will come from allowing the auto focus system to do its job.

ⓘ Zooming in for focus, then backing out for framing does *not* deliver superior results as it does in color.

Another night photography mode is available, the Night Viewing mode. This mode uses the IR system for viewing and framing, but jumps out of that mode for the eventual shot. You view and frame using the greenish NightShot image, but when the actual exposure is made, the flash pops up and a full-color exposure is captured.

This mode also makes good use of the internal *holographic* projector. It's a sort of laser pointer with a holographic zigzag pattern that splashes onto your scene to facilitate electronic focusing. You can turn this projector off in the Set Up menus (*Set Up > Camera(1) > Hologram AF > Auto/Off*) or enable it for automatic use when the light level gets too dim for reliable focus.

Any glass over the lens interferes with the IR emitters. These felt pads block the emitters reducing reflections but disabling NightShot.

ⓘ Both of the IR-assisted modes depend on the face of the lens having a clear view of the scene. *Any* filter placed over the lens will interfere with the IR emitters and the holographic laser projector. Even a multi-coated UV filter will throw back glare from the IR emitters and spoil night shots. You can't have IR illumination and filter it, too.

INFRAREADY

At the atomic scale, photons are big. Since all photons are pure color, every one of them is one wave of a specific length. Blue photons are the shortest visible ones, each being about 400 nanometers or 400 billionths of a meter. That is also 1/2500th of a millimeter.

Our eyes see blue quite well, and at the red end of the spectrum, we see photons nearly twice as large, these being about 700 nanometers long. That red photon is like a nebulous ball of electromagnetic energy over 100 feet in diameter (30 meters) compared to a hydrogen atom the size of a BB.

SONY DSC-F707 in NightShot mode + IR filter stack.

With the right filter stack, your 707 becomes an infrared sensitive camera.

Infrared light is lower in frequency—and physically longer—than the nominal 700 nanometer wavelength of red light our eyes can see. It doesn't scatter off dust particles in the sky the way blue light does, and that makes blue skies look black when shot in the infrared spectrum. Plants want high-energy photons to help them synthesize complex food molecules, so they turn away lower-energy infrared light while absorbing a mix of visible red, blue and ultraviolet. Green isn't the frequency they're most interested in either, so they turn it away, too. Odd that we think of "lush greenery" when plants are really casting those distasteful green photons away.

Since plants throw off infrared frequency light along with the green photons, an infrared picture of the plant shows its vegetation as bright white. Black skies and white plants can add up to interesting images.

The color filters that populate the imaging chip's surface do their job well in visible light, but they also let in a lot of infrared. The camera has a glass filter in its optical path that absorbs IR photons and lets the visible ones pass through, unimpeded.

When the F707/717 does infrared imaging—using NightShot mode—the camera slides the infrared-absorbing filter out of the image path and immediately starts seeing the warm world. In fact, it isn't designed to shoot infrared images of sunlit vistas, but with a little optical persuasion, it can become a very good infrared camera in full daylight.

NightShot mode has limits. It is designed to grab shots using the camera's two IR LED emitters that sit just above the lens. If one were to put an infrared-passing filter over the lens, its inner surface would reflect the IR emitters back into the camera lens producing a glare in the upper part of the image.

ⓘ To remove the glare from the inner surface of a filter placed over the lens, you must block those IR emitters. One way to do this is to put a pair of felt circles such as those made to protect table surfaces from the feet of small objects resting on them, onto the inner glass surface of any filter intended for use with NightShot mode. Where would one find such a convenient infrared absorbing item? Your local hardware store.

ⓘ The filter stack that does the job for shooting IR daylight images consists of at least two filters, one to reduce the light overall—a neutral density filter, and one to absorb visible light—an infrared filter. ND8 (A.K.A. *0.9ND* in Tiffen nomenclature) plus an 87C (A.K.A. *093* in European nomenclature) will get you started. You *may* have to add more neutral density—a polarizing filter works—for bright daylight scenes.

ⓘ A different approach is to diminish the visible spectrum to such a dark level that only the IR spectrum makes it to the image chip. 2filter.com may be able to get you an *ND400* filter—nine stops of darkness, and that can only help in bright daylight.

CONTROL MAPPING

As you start to learn each button, the markings and icons on it are there to guide you. After a certain point in your finger training, the function of the button or control will become automatic. Eventually, somebody could hand you an F707/717 in the dark and your fingers would know how to make everything work. This takes a little more practice than you might think. Good thing that the placement and design of the 707/717's controls are quite ergonomic.

MEMORY GUM

As digital cameras evolve, they will shrink. As they shrink, all their components must shrink. Batteries, chips, optics, controls, and memory media all *must* go on a technical diet to meet the demands of the future. Microcircuits are shrinking naturally, so memory circuits are shrinking too. In a bold move, Sony announced in late 1998 that they had developed the Memory Stick, a slim 21.5 x 50 x 2.8 mm memory module that resembles a stick of blue or purple chewing gum. I think they made it colorful to prevent people from accidentally mistaking it for candy. My thinking may be flawed...

ⓘ Try telling that to the dog, and be sure to keep it away from teething toddlers.

It's small, light, and precious. A typical Sony brand 128-megabyte Memory Stick sells for about the price of dinner for two in a really nice restaurant today, but what do we know about the price for memory? Right. It is always falling. Does that mean we can eat out more often?

When people learned that Sony was using and promoting a new media format they groaned. Sure, it was smaller, but it was completely incompatible with all prior media types, so to explain it, critics trotted out the Betamax Mistake as an excuse for how poorly Sony's consideration of the marketplace was being demonstrated once again. In doing so, the critics missed huge amounts of forward thinking. Nothing about the Memory Stick concept was similar. Sony was encouraging other manufacturers to use it and had Sharp, Olympus, Casio, Aiwa, Sanyo, and Fujitsu signed up on the first day. Other manufacturers were licensed to make it, too, including Lexar, SanDisk, Fujitsu, and I•O Data. Products are already appearing left and right.

In April 2000, Sony dropped the other shoe. A memory stick was announced that included a very small sub-module less than half the volume of the original at 20 x 31 x 1.6 mm, which fits into a standard Memory Stick-sized *carrier*. In other words, *either* kind could fit into a device that could carry the larger one, as long as you had the carrier to adapt it. The smaller version is smaller than competing designs, and it has not appeared as the primary memory module for digital cameras, but the direction is clear: Small is all. In the summer of 2002, Sony announced the product for sale. Tomorrow's digital cameras may soon become lipstick size.

Sony has produced micro cameras the size of a tooth, and they see a future in which digital cameras will be worn as jewelry, so their creation of tiny memory is a vital component to that future. No date has been given for the molar-cam. Smile.

GREATER CONTROL

Beyond these controls, a whole range of systems complete the camera. These include the menu system, exposure priority mode systems, moving image-capture modes, review image mode, accessory connection port, flash system, recharging system, external monitor viewing connection and download data link. Chapter 5, *How Do I...* will provide in depth detail on all of these.

What a great lens flare? Nope. A Photoshop Lens flare effect on top of the image of a bright light adds drama.

Chapter 3

Photo Myth Reduction

The Truth is Around Here Somewhere

ⓘ = InfoBite

Some people believe in things that are not true. In fact, I know of nobody on Earth that this doesn't describe including me, but in photography, myths and superstitions can get in the way of successful images. We shoot our pictures and often look at other people's shots only to conclude that they are better than ours. "Oh, I'll never be a photographer like those folks," we may say, but that's just an excuse. If you can learn the errors that lead to poor images, your photos will automatically benefit.

When something is not understood, our brains make up comforting stories to rationalize the subject matter into tidy compartments of "feel good" explanation. To some degree, we are all victims of the irresistible pull of self-delusion. At the instantaneous level, we can all see how optical illusions do this to our heads.

Thus it is with rules of thumb, myths and superstitions that swirl around the general subject of photography. Some are true, others half-true and still others outright mythology. Here are some old photographic chestnuts and their exceptions.

- If you shoot exposures 1/30 sec or longer, you need a tripod.
- When you shoot indoors, you need a flash.
- Keep both hands on the camera for steadiness.
- Photographic talent is something you are born with.
- The best images have the sun at the photographer's back.
- When shooting outdoors, you don't need a flash.
- The best shutter speed for flash is 1/60 sec.

Combined with these are the superstitions about photography.

- The way to get the best image is to tell everybody, "say cheese."
- Put your subject's nose in the center of the shot.
- Digital cameras are poorer at taking pictures than film cameras.
- Everything looks worse in black and white.
- If the image isn't perfect in the camera, it never will be.
- Shadows have no color of their own.

Rules are made to be broken, right? And we all know where superstitions belong. While each of these may contain a kernel of truth, they are far from the whole story. Let's take a look at how they may be transcended.

IF YOU SHOOT EXPOSURES 1/30 SEC OR LONGER, YOU NEED A TRIPOD.

Mostly right. The subtle movement of your hand will probably spoil shots that are taken at 1/15, 1/8 and 1/4 sec or longer. Help exists in the special 707/717 feature called Burst 3. You will find it under *Menu* > *Rec Mode* > *Burst 3* and it lets you squeeze off three shots with one press of the Shutter release.

The chances are good that one of these three images was made with less average camera movement than the other two.

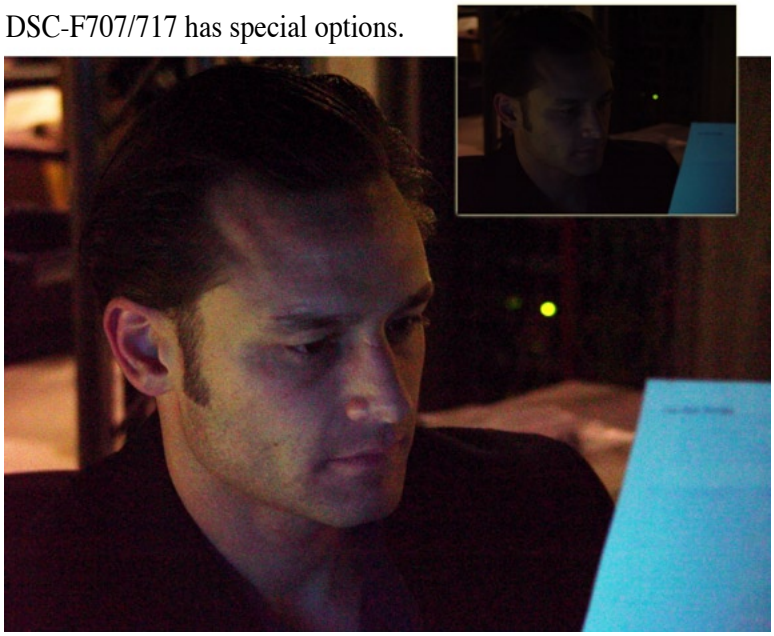
All three images are made at the same exposure and focus setting so the only difference among them will be the relative unavoidable hand movement during the rather long exposure. That movement will destroy edge detail and smear fine textures into motion-blur. As the image is compressed inside the camera for storage, motion-blurred detail is easier to compress and the blurred files will require less storage space. Are you thinking what I'm thinking? I'm thinking; keep the big one.

...And may the biggest file win. The largest file is often the most detailed.

ⓘ When you look at the size of each shot's file on your computer, there is a very good chance that the *largest* file—the one with the most kilobytes (KB)—is the one showing the greatest amount of detail and sharpness. Get Info about the string of shots to see if this is true for your images.

WHEN YOU SHOOT INDOORS, YOU NEED A FLASH.

It is nice to have a flash for most indoor shots, but the DSC-F707/717 has special options. You can shoot at ISO 800, 1600 or higher by setting the EV+/- control to -1.0 or -2.0 EV. The shots will look too dark on the camera LCD, but with Photoshop or Photoshop Elements, underexposed images made like this can be resuscitated in your computer. Here one can recover relatively decent tonal values and in some cases, nobody would guess that you had taken the image to extremes. Switching to *Menu* > *P.Effect* > *Sepia* can mash some high ISO artifacts and cause very interesting images to be captured under night and low light conditions. ISO boost for the F717 is a stop higher than for the F707.



Pushed over the edge. A severe underexposure can often be "push-processed up to a useful result.

ⓘ iNovaFX Photoshop Actions are provided on this CD for use in rescuing shots intentionally underexposed one or two stops. Familiarize yourself with them to gain a visceral understanding of their benefits and drawbacks before you shoot critical images at these elevated ISOs.

The camera flash may cause "red-eye" effects on people in dark areas because our irises open wider in the dark. Sony's own HVL-F1000 external flash unit permits better control of electronic

Bounce flash picks up the color of the room. Straight flash (inset) is flat in comparison, but its color is more accurate.

flash exposures and lighting techniques. It mounts on the accessory shoe atop the lens barrel and plugs into the ACC socket on the right side of the barrel. Its height naturally avoids red-eye, and it obeys the shooting menu *Flash Level* > *High/Normal/Low* choice you have selected.

ⓘ The HVL-F1000 works with the NightFraming mode just like the internal flash unit does.

ⓘ For better looking images indoors, the HVL-F1000 tilts up for bounce lighting, shooting its photon burst at the ceiling. This creates an even, soft, overhead lighting that avoids the stark look of the camera flash.

ⓘ The F717 model added a hot shoe, an accessory mount that connects to an external flash without wires. It will take external flash units from almost every third party supplier as well as the HVL-F1000. This opens up a world of possibilities, but third party flash units don't understand the *Flash Level* menu item the way Sony's own flash does.

NightShot mode, with its built-in IR illumination creates monochromatic *night vision*-appearing images and with *Menu* > *ISO* > *Auto* invoked, the camera sensitivity goes through the roof to as high as ISO 2500. It's for emergencies and unusual or artistic images, but if you need it, you have it available with just a few button clicks.

Trees are solid. Lean your camera grip into the tree for long tele stability.

KEEP BOTH HANDS ON THE CAMERA FOR STEADINESS.

The *number* of hands on the camera is not the only thing that determines steadiness. The stability of the camera is all that counts.

The most important thing is to have a secure control of the camera body. With your right hand firmly grasping the right half of the camera, a number of options become available. To give your right hand the greatest leverage, try to consciously press the camera into your right palm from time to time as you shoot, and re-wrap your fingers, freshening your grip.

Holding the camera in both hands out in front of your face while using the monitor to frame the shot is far less steady than holding the camera against your face while using the internal Finder. Your head is usually a very steady platform. After all, it's the only thing stabilizing your own biological cameras.

The most stable grip on the camera is with one or both hands, arms or elbows in contact with something solid. Standing alone, your body is the most stable thing you can lock the camera to. But any wall, post, fence, railing, table, pole, knee, chair, window, fender, door or tree can become an impromptu brace for your camera hand.

PHOTOGRAPHIC TALENT IS SOMETHING YOU ARE BORN WITH.

Some are said to be born with a silver spoon in their mouth. But a silver camera?

While some people can have an innate sense of artistic expression close to the surface of their consciousness, there is no photographer gene in our DNA that allows some people to be good at it while *preventing* others from being photographically aware.

Photography is *not* more complex than speech. We all learned how to speak. Like many things that appear to be dauntingly complex, the elements of photography are a number of things that can be learned, practiced, observed, critiqued and transcended. You can learn a challenging aspect like composition by rote at first, then by habit, then by conscious awareness, then by creative invention.

That's how we learn to speak. Word play begins with our mothers naming things for us, correcting our misconceptions. We add verbs, adjectives and inflection, we play with new combinations, create new sentences and end up composing e-mails, poetry, jokes, slogans, grocery lists, novels and love letters.

Doing all that is far more complex than learning how to aim a camera at interesting things, far more intricate than gaining an appreciation of how to zoom and compose the image, move to position the subject matter better in the frame, hold the camera appropriately and trip the shutter.

THE BEST IMAGES HAVE THE SUN AT THE PHOTOGRAPHER'S BACK.

Threat or promise? Neither; it's a lighting test. Hold your fist in the same light that is falling on your subject to estimate both lighting conditions and potential remedies for problems.

Not necessarily. While an image is a record of the objects in front of the camera, it isn't the object you are capturing at all. Only photons* of light bounce off the object and make it into your eye or camera.

When the sun is at your back it is on your subject's front. It often looks better if it is coming from slightly to one side. You can hold your hand in front of your face and see how the sun looks on flesh. Make a fist and you will see a complex of surfaces, highlight and shadow areas. Fill light and bounced light are all present in the image of your hand in front of your face. You can begin to predict how the angle of the sunlight on your subject might work to paint the subject for a more effective photograph.

Later in the book you will find instruction on basic lighting and how you can manipulate inexpensive flash units to give very professional lighting results.

With the sun at a high angle behind your subject, an on-camera flash won't look the way it does in indoor shots. Here it adds just a little fill light to the front of the subject reducing the contrast that strong backlight produces.

OUTDOORS YOU DON'T NEED A FLASH.

Much of the time this is true. Some of the time you will need to fire your flash into the scene adding a little extra fill to the picture. Not all images need sunlight to touch your subject in the face directly. With camera flash added to a close-up portrait posed with the sun behind your subject, the shadow side can be brightened while sunlight becomes a strong back light.

Using the camera flash permits you to fill shadow areas of close objects very effectively. Learn how to make this idea work for you by experimenting liberally with it in the sun. You can force the camera to trigger the flash by selecting the force-flash icon (the lightning bolt arrow) with the flash mode selector.

The camera flash will add more or less extra light into the scene depending on the distance from camera to subject. Since the effect is so variable, shoot a test shot before committing to the final effect.

The camera has some control over the flash output and this will help with outdoor fill flash. For really fine adjustments under controlled circumstances the *Menu* > *Flash Level* > *High/Normal/Low* adjustments may allow you to get just the balance of fill you need.

THE BEST SHUTTER SPEED FOR FLASH IS 1/60TH SEC.

There is no "best" shutter speed for flash. Since most flash shots are made in relatively dark places with some existing light, it is often more natural to have *some* of that light in the shot. For this reason, a 1/30 or 1/60 sec exposure may be a good compromise. But for outdoor shooting, these speeds would be too slow.

For tighter control of existing light, you can set the camera's shutter to very fast speeds. Film cameras often have a shutter that only synchronizes at certain low speeds. Not so with the F707/717. Here, the entire moment of exposure is closely controlled by very precise computer coordination that synchronizes to the flash trigger no matter what its shutter speed.

The highest shutter speed synchronizes with camera or external flash.

ⓘ You can enter Shutter priority mode and set to maximum shutter speed and still sync. The camera will synchronize internal or external flash at any shutter speed all the way up to 1/1000th sec. With the F717, the top Auto Exposure speed of 1/2000th sec will still synch with a flash unit.

ⓘ Using a high shutter speed will cause the effect of ambient light to diminish in the resulting exposure. Low shutter speeds allow more ambient light to join the camera flash in the image. Test shots made under the same lighting conditions will guide you.

TO GET THE BEST IMAGE, TELL EVERYBODY, "SAY CHEESE."

What you really want to do is have people smile, look pleasant and unnatural, right? Oops, that wasn't what we wanted. You will have greater success with English speaking subjects if you ask them to say the word, "Nice" instead. Now they don't look like over-smiling loons, but have a natural pleasant look to their mouths and eyes. Part of the effect comes from the subject encountering some other thing to say than the standard cheesy line. Some of it comes from the psychology of being asked to say something nice, even if it is only that word. As subjects, we have a hard time saying "nice" while harboring grim thoughts, and it shows on our faces as a more natural expression as the shutter clicks.

PUT YOUR SUBJECT'S NOSE IN THE CENTER OF THE SHOT.

Nobody really says this, but from the look of things, too many people believe it. In composition class, as the eBook unfolds, we will discover a lot of different ways to shoot a face, a person on vacation, a family group, a kid at play and a straight-on portrait. Some of these will actually have the nose in the middle of the shot, but not because of this old chestnut. The only reason a nose will end up in the middle of the shot is because that's where it happens to land while some other, deeper sense of composition was being exercised.

Center the nose? Sometimes yes, sometimes no. Eyes are a more important detail to emphasize.

DIGITAL CAMERAS ARE POORER AT TAKING PICTURES THAN FILM CAMERAS.

Some believe that film is superior because of the numbers. Lines per millimeter. Dynamic range in f-stops. That sort of thing. Film still wins with some of those numbers, but these Sony digital cameras make extraordinarily good images without film and processing costs. They let you review the images right away, throw the bad ones out right now, and see what the shot is going to look like on a TV screen as you are working. Film cameras don't do that.

The Sony DSC-F707/717 can shoot images with enough detail to be used in major special effects shots in motion pictures. As photographic tools, they are capable of things even 35mm and medium-format cameras can't achieve. They are pre-digitized live scans right from the photons of the real world and their images have no dust spots, processing bubbles, fingerprints or water spots. They can deliver an image from subject to print faster than you can develop a color negative and you can put thousands of images into your computer without needing more physical volume of storage.

Film cameras generally capture a wider range of brightnesses but to get the most from film images, photographers and studios are regularly digitizing the film image in order to enjoy the flexibilities of digital image manipulation and printing. What will they call it next? Figital?

As you begin to expand the types of images you shoot, you will find that the 707/717 will go places no film camera can, simply by the design of their physical layout. Any camera that forces you to look through its back surface to frame the shot is designed along "traditional" principles (read: obsolete).

Digital cameras are better than film in some ways, and film is better in others. The 707/717 might not be your first choice to shoot the team group shot, but that 6 x 7 Mamiya isn't your first choice to shoot the party that follows.

Today black and white photography is considered a special effect.

EVERYTHING LOOKS WORSE IN BLACK AND WHITE.

Paul Simon wrote that line in the song, *Kodachrome,* in 1969. He was kidding, but the sad thing is that many people believe it. Later in the book you will find exercises that force you to see and shoot in monochrome (using the *Menu* > *P.Effect* > *Sepia* plus a quick de-sepia Photoshop Action called iSepia>BW) in order to train your eye and thought processes. Black and white is a different art form. Not all images are best seen in natural colors, and techniques will be given that let you turn color pictures into black and white images that maintain the look of film emulsions.

Knowing when to shoot in black and white is something you can become sensitive to. The Sepia mode allows you see monochrome images directly. No film camera can do that. With every film camera, one must think in black and white while watching the scene in color.

IF THE IMAGE ISN'T PERFECT IN THE CAMERA, IT NEVER WILL BE.

There never has been a camera that got the shot perfect in the camera every time. It's always something. The tonalities aren't optimum, the color is a tad too spicy, the background has a distraction in it, the exposure was too bright or dark, the shadows and the highlights were too far apart, a fly landed on the model's ear just as the shutter clicked. And these are the things that have gone wrong with film and digital images since day one.

The digital before/after manipulation here has cut through 12,000 feet of atmospheric haze. The iNovaFX Photoshop™ Action filter that does this is on this eBook's CD.

How are issues like this handled in film? Scan the film into the digital realm, then fix it. With the F707/717, your image starts digitally, so fixing it is a lot more immediate. The next chapter deals with the most common things you can fix with the preferred software, Photoshop™.

Most editing programs will achieve basic changes like crops, color adjustments and tweaks of various kinds. Photoshop Elements is a great First Tool and allows you to do a lot. It has that desirable balance between simplicity and sophistication. Everything you learn with it applies to the next step, the full version of Photoshop.

Full Photoshop is, at this writing, in Version 7.0. It allows use of actions, including the many iNovaFX Actions. Actions are macro functions that can call upon *any* function within the program and execute dozens or scores of steps with a single button push. Some of the iNovaFX actions have over a hundred steps! You would never be able to remember all of them, but the action will never misre-

member them. See Chapter 10 for details about the included iNovaFX Actions.

SHADOWS HAVE NO COLOR.

Interrupting a beam of light with an opaque object causes no color, but it opens up the possibility for other stray light to affect the shadow. Light that was there all along. The reason shadows aren't jet-black is because they are illuminated with light bouncing off everything else.

Golden rays of sunset meet the blue of the sky allowing subtle color into the "neutral" shadow. Photoshop reads up to 14% saturation in the blue/cyan (sky blue) shadow of the cat.

Along with sunlight comes blue sky, for instance. Where the sun's rays can't reach, the sky often does. If today's sky is intense blue, the shadows can fill up with light that includes a large component of blue sky light. Photographers call this "blue spill."

Your eyes often won't see it this way, since their sensors are a combination of luminance and broad-sensitivity color receptor cells. Your brain works hard to see the color of the *object* in spite of the color of the light illuminating it. Photography, both film and digital, must deal with absolute mixtures of primary colors, so that dyes, inks, pigments and glowing phosphors can portray a reasonable approximation of what was in front of the lens. In doing so, photography doesn't have the luxury of portraying the color of the object while ignoring the color of the local light, the way your brain does.

Film is manufactured with its color sensitivity locked-in at the molecular level. Shoot with the wrong light, and the photographs will be filled with unwanted color. Yet the daylight streaming in through a window into a room lit with incandescent light looks fine to our eyes. Obviously seeing and believing are not in the same camp.

It's no wonder that eyes can't see the blue sky light filling in the shadows in direct sun. Knowing this, you can train your eyes to look where blue from the sky is, or is not, giving you interesting blue shadow opportunities.

Sometimes, as in the *Cat Railing* shot above, you can peer at the scene and see the effect of the shadow filling up with sky color as a direct observation. If you can recognize the blue spill at all, you will find it to be more prominent in the final result. The more you look *for* the effect, the more you will find situations that deliver the perception consciously. In a sense, you can rise above your normal modes of seeing and start to see what usually is ignored.

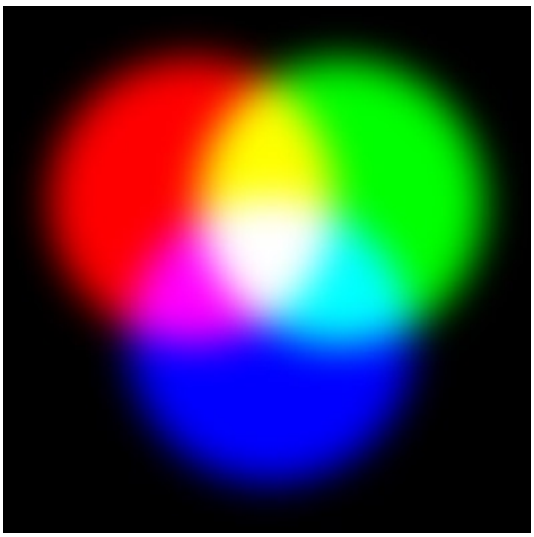
Learning how to observe beyond your normal habits of seeing will help all of your photography. Start with looking for sky color in shadows in the hour before sunset, then add in other skills such as watching life in terms of composition and framing. The more you do, the greater your visual experience of the world in your photography and your life.

Chapter 4 The Photoshop™ Connection

Making and Manipulating images

Photographers all know certain things that always work, right? Rules of thumb like never get your thumb in front of the lens. Hold your breath at the instant of exposure and stuff like that. On the other hand, everybody knows that Photoshop is good, but you have to study it forever before getting any real results out of it, right? Why it's so complex and difficult that only dedicated computer nerds can make it work. Maybe not...

COLOR BASICS

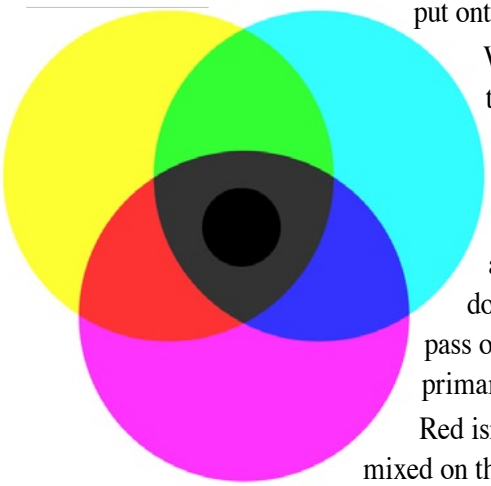


We've seen that color photography of all types deals with two different ways of forming an image. The camera and the display. Cameras must acquire the scene and somehow break it down into colors for storage. Additive color images are formed when proportions of these pure red, green and blue colors pile on top of each other in our eyes. With the right mix, we see white and all the colors of the rainbow.

Yellow is made when red and green light mix on your retina. Magenta arises from blue and red light mixing and cyan light is what we see when blue and green are mixed. Change the proportions, and you will have every color possible.

Additive (right) and subtractive (below) color models. Think of additive as colors piling up on top of each other while subtractive is like filters piling over one another.

The information for each of these color channels is just a range of tones from darkest to brightest. When portrayed as glowing red, green, and blue images piled on top of each other all at once, or when put onto a piece of film in a triple exposure, they form a full-color picture.



When you cause a picture to happen from tiny glowing spots, the colors blend together in your eye. But when you shine a light off a piece of paper or through transparent film, it has to *absorb* some of the white and let only the color picture bounce back or pass through.

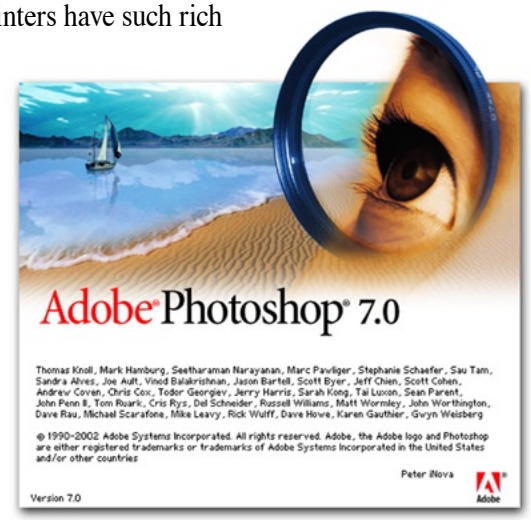
In prints and slides, materials are used that *absorb* light. Here cyan, magenta, and yellow (CMY) inks or dyes overlay each other and let only the light they don't absorb pass through. With each ink actually letting 2/3 of the color spectrum pass or bounce off the page, it takes two *different* inks or dyes to cause any given primary color like red, green, or blue to shine through.

Red isn't absorbed by either magenta or yellow ink, so when magenta and yellow are mixed on the page, only red light, common to both, survives to bounce off and reach our eyes. The blue in magenta is absorbed by the yellow. Cyan and magenta have only blue in common, so only blue light bounces back when they overlay. Yellow and cyan let only green bounce or pass. Each dye subtracts (absorbs) the non-common part of the other dye (color). Pile all of them on top of each other, and they subtract everything, and if the dyes are pure enough, no color escapes and that part of the image looks black.

This sort of "subtractive" color is used in the inks that print full-color pages in inkjet printers and on large presses for magazines and books. Many printing inks or dyes need a little extra help in order to make good-looking dark blacks. Black ink is added on certain inkjet printers, such as the Epson models, and in mass printing processes, to boost the contrast and produce deeper blacks (as with the circle of black at the center of the preceding image). Some photographic desktop printers have such rich color inks that they can produce photographic results from just three colors of ink, the DeskJet Printers from HP and Bubble Jet Printers from Canon.

THE COMPUTER CONNECTION

When you wear a fabulously well-tailored suit, you don't want cheap shoes. Software in your computer will finish what the camera starts, so you would be ill-advised to stop learning digital photography as soon as the exposure is over. You didn't get this high quality camera just so you could ignore the rest of the process only to stop making the picture at the sound of the beep.

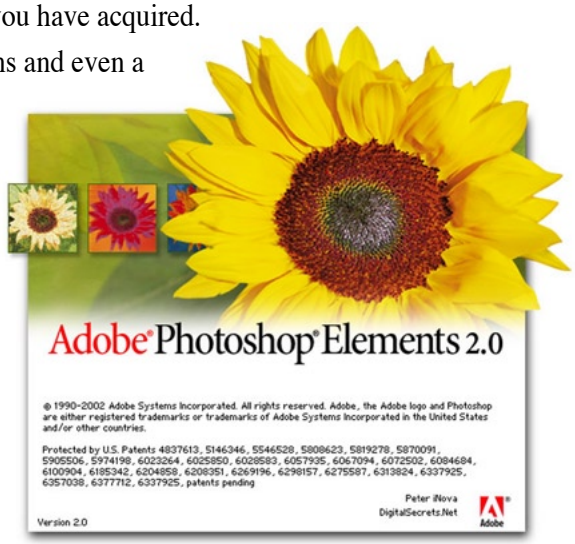


Daunting or easy to use? Experience it for an hour or two, and you'll realize that it isn't difficult to learn the basics, and you can keep learning it for years. iNovaFX Actions work only in PS 6&7.

To create custom prints, reduce images to Web size, maximize the impact of your images, and for all forays into the loftier realms of photography as a creative medium, you have to touch the image to bring it to a higher place. Much of this is done with lighting, framing, and exposure in the camera, and later sections of this book will give you plenty to do in these areas.

On rare occasions the image from the camera will be perfect when it slides out of your printer unmanipulated. For the other 98.9% of the time, you will need to augment your efforts in the camera with adjustments, creative opportunities, crops, size changes, and tweaks from a software program in your computer. The software you use is as important as the camera you have acquired.

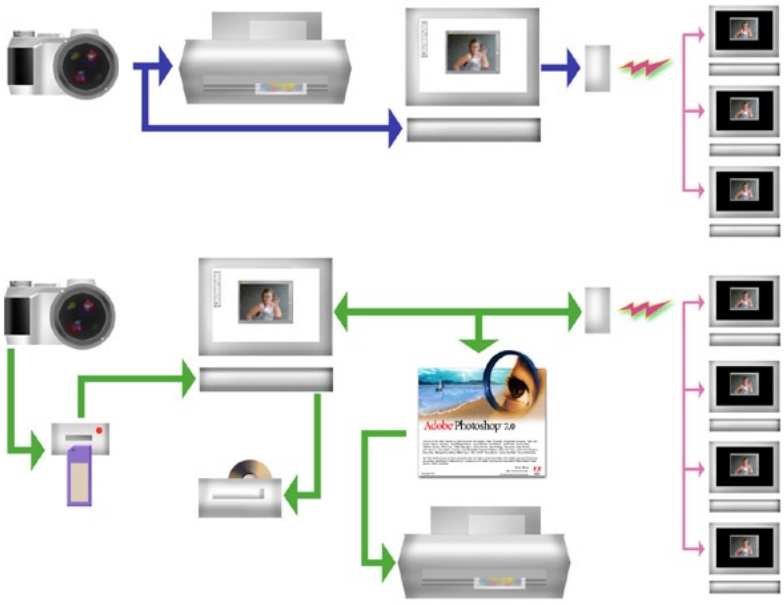
Software came with your camera that lets you do basic digital manipulations and even a range of special effects. *MGI Photosuite* (F707 only) software lets you open folders full of images and see the shots as large icons arranged as if they were a bunch of slides on a light table. This is very helpful for first determining what your shots are like. Basic judgements can be made about brightness and color at this size, and you can click on the images to open them as larger images for closer inspection. The *Pixela ImageMaker* and *Image Transfer* programs (F717 only) provide similar basic functions.



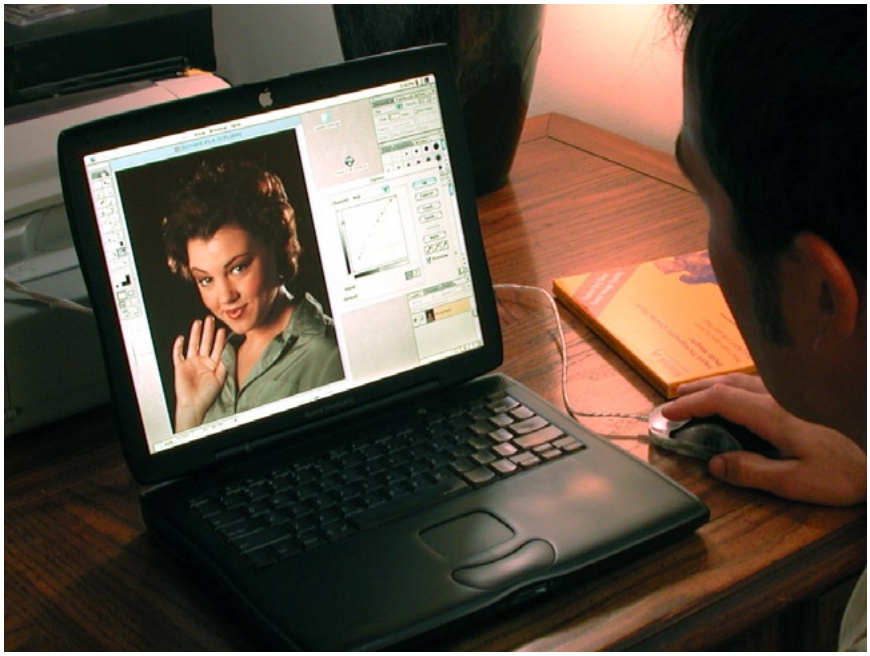
Easiest to use but less sophisticated. Photoshop Elements will teach you a lot, and all your experiences will apply to Big Photoshop. Sorry, it doesn't run iNovaFX Actions.

Photoshop, however is a force in the mastery of digital image manipulation as constant and omnipresent as Kodak is in film. It isn't everything, but it's way ahead of whatever is in second place. That's why the Photoshop Tryout is included on this eBook's CD. It's the right program to finish your shots with mastery. The Photoshop Tryout Version 6 has the ability to sample some of the functions of Actions, but because it is a limited form, not all of the iNovaFX actions will operate with it completely.

Other image manipulation programs are available, and all have their strong points and weak points. For many, Photoshop Elements will do a lot. Too bad it doesn't read my iNovaFX Photoshop Actions. Still it will be your second-best choice. For the greatest benefit to your digital images, you will want to upgrade to the full strength version of Photoshop with all of its bells and whistles.



You have choices. Some printers can make prints from the camera's Memory Stick directly, and the camera can hook up to computers for direct downloading of images, editing, and distribution on the Internet. Alternatively, the computer can download images from a Memory Stick Reader and become the center of a complete digital darkroom. Here images can be distributed to deep storage (represented by the CD R recorder), the Internet, and into Photoshop for the most advanced editing and printing to a wide variety of printers. One can start with the simple system and add a Memory Stick Reader, CD R storage, and Photoshop over time.



Cameras are portable; the rest of your production process can also be as portable. Laptops with high quality color displays, of at least 1024 x 768 pixel resolution, make it possible to do professional dimroom work anywhere in the world.

THE DIGITAL DARKROOM

Darkrooms aren't dark any more. Think of it as a *dimroom*, a place without glare on the computer screen.

In the chemical era, the darkroom was the only place you could efficiently organize all the enlargers, trays, developing hardware, chemical fluids, and wash systems, and it had to be absolutely light-tight to do color work. In black and white darkrooms, a deep red light was the only light you could work under because the papers were only sensitive to bluish light. Color materials had to be handled blind.

Today, a computer, printer, and software cost about as much as a fully equipped color darkroom, but the flexibility and depth of achievement has skyrocketed. No chemical darkroom could ever surf the Internet. Fully equipped, the digital darkroom is the custom finishing center, the storage library, and the distribution nexus for your images.

The most common form of darkroom these days, even for film originals, is the same one your Sony feeds directly—the digital darkroom. Scans of negatives and transparencies are now the common starting place for film work.

The finishing tools are the same ones your DSC-F707/717 needs. The editing programs included with the camera, give you the opportunity to manipulate some aspects of your digital images. As image manipulation programs go, they're basic but will allow you to play with some of the concepts of the digital darkroom.

If you want to finish your images with a program that equals the values of your camera, Photoshop is *the* answer. It is the program others are compared to and to which they aspire.

It's not cheap, but then neither was your camera, nor are your images.

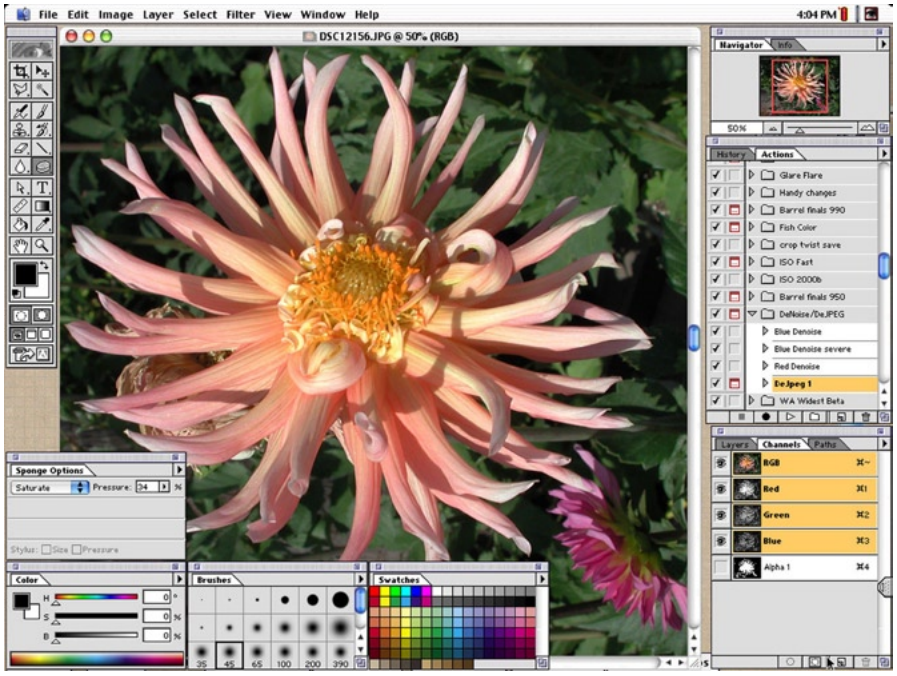
THE FAST TRACK TO PHOTOSHOP™

- You can learn 80% of Photoshop in seven quick steps.
- Most of these steps work with Photoshop Elements, too.

Many people have said that they see Photoshop as a daunting learning curve of effort and frustration. From the viewpoint of Photoshop users, this simply isn't the case. In fact, you can learn Photoshop one trick at a time and get immediate satisfaction from it with a little basic guidance.

If I were looking over your shoulder while you were trying the program out for the first time, I would guide your attention to things in this order:

- Learn to open an image and save it under a new name, so the original won't accidentally be replaced by future saves. (The Save As function) This works just like you might anticipate. No learning curve at all.
- Learn to open an image and save it as a different form like PICT, TIFF, JPEG, and Photoshop's native PS format. (The Format option in the Save As function) Within 5 minutes, you will be an expert at it.
- Learn how to change an image's lightest, darkest, and middle values with the Levels control. Simple. Easy.
- Learn how to change an image's brightness values with the Curves control. More versatile and engaging.
- Learn how to use the gray eyedropper in the Levels or Curves control window to instantly fix color balance issues. A technique that is entertaining and easy to master.
- Learn to add and subtract chroma, the depth of color, with the Hue/Saturation control. A workhorse.
- Learn how to apply the Unsharp Mask filter from the filter menu. Interesting and satisfying to experiment with.
- Learn how to use the Burn and Dodge tools to darken and lighten local areas of your image. Tweaks.



This would have taken about an hour of your time. These basic manipulations are the ones you will use 97.2% of the time. The other 2.8% of your time will be consumed in filters (easy), masks (tougher), special effects (fun), and exotic manipulations (which can be so involved that these are probably why people think Photoshop is hard to work). For many of those last items, this eBook's other files provide solutions.

Since opening and saving files is such a basic function, I'll assume you already know how to do that. What follows are the other steps that will help you learn the basics of Photoshop right this hour.

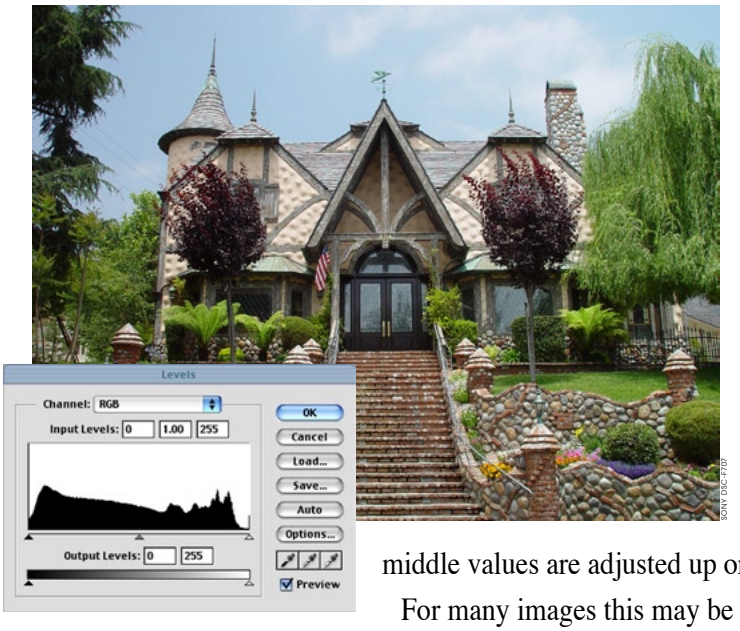
(Note that many Photoshop tools are selected with key shortcuts. The Command key is used in Macintosh computers and Windows computers use the Control key, Ctrl, in combination with individual letter keys to select certain tool and windowed controls or functions. For instance, Command/Ctrl-Z performs *Undo*.)

DIGITAL PHOTOSHOP™ DARKROOM TECHNIQUES

IN SEVEN EASY LESSONS.

PART ONE. TONAL BALANCE.

Tonal balance refers to the brightness dynamics of the image. Some programs, including Photoshop, have controls labeled Brightness and Contrast. Try to *avoid* these controls because they almost always cause information to be lost as they do their job. Other controls achieve the same results but let you see what you are doing. Think of it this way, a digital image is made up of not numbers but spots of brighter and brighter gray until the top one is white. This happens in each channel of the three colors that build up a color picture. Red, green, and blue, RGB, each have 254 levels of gray between black, level #0, and white, level #255. For many changes in your image, you don't want to change the color, just the brightness of the image in certain central ranges. Here are tools that do exactly that.



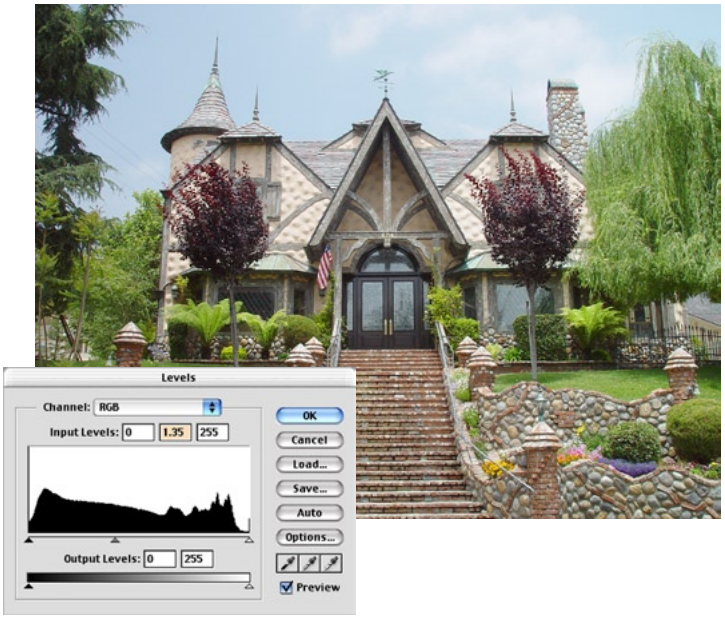
1. LEVELS

(COMMAND OR CTRL-L)

The Levels control lets you adjust the top, bottom, and middle values of the image separately. Sliding the middle control, the "gamma" adjustment, is a surprise to someone doing it for the first time.

Wow, look at that, the whole picture got "brighter." But, in a technical sense, just parts of it change. The middle values are adjusted up or down with this control, giving that impression.

For many images this may be all you have to do. Supporting your adjustments is a histogram of the brightness values in your shot. It's that mountain range-like graphic. As long as the range doesn't extend off the sides of its frame, you can pull the shadow point indicator in from the left and the highlight indicator in from the right causing the mountain range to spread out over a wider space. A Contrast control would achieve the same thing, but here you can see exactly what you are doing and more importantly, when to stop. If you move the control into the space occupied by the histogram, you are defining the cutoff value for the top or bottom of your shot. Anything below the shadow and above highlight indicators will be lost into the white or black of the resulting image.



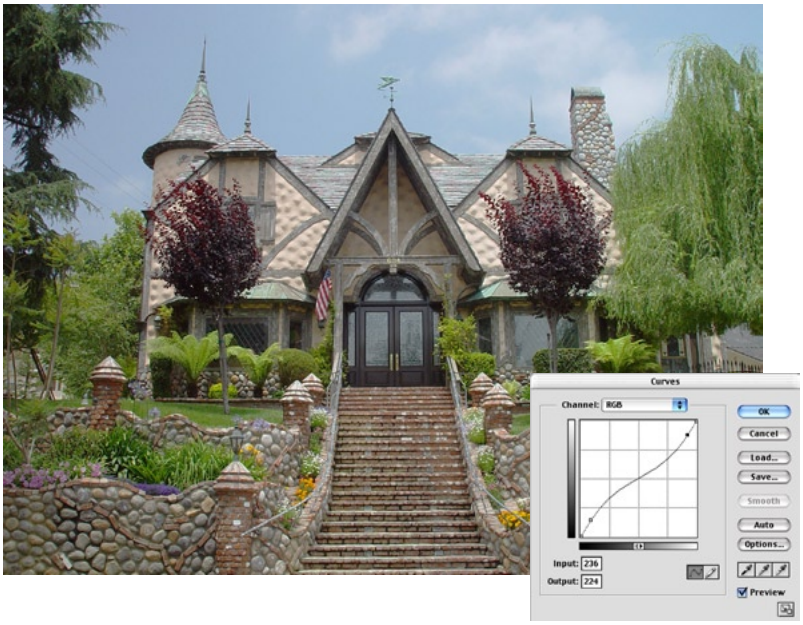
The center gamma control lets you pull the middle tone of the image up or down. The effect is very much like adjusting the exposure, but the shadow and highlight extremes of the image don't change. In effect, you are changing only the center of the exposure.

Play with this control a lot to see how your image behaves. You don't have to accept changes you make with it, and the next control may be more to your taste.

2. CURVES

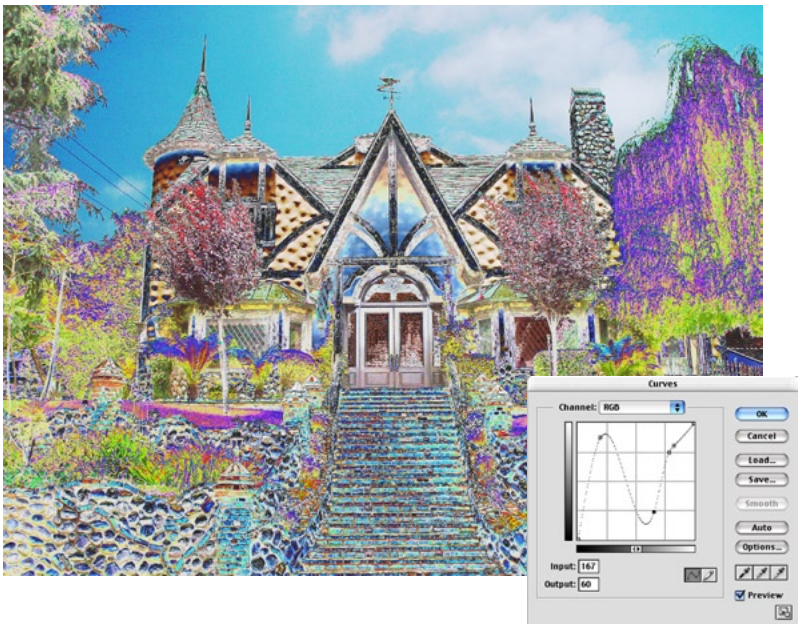
(COMMAND OR CTRL –M) (NOT AVAILABLE IN PHOTOSHOP ELEMENTS)

The Photoshop Curves control is much like the Levels control, except it can do more in a different way. When you open the control, it is a chart with a 45° slanted line across it. This line stands for the tonal value in compared to the tonal value out. You can choose to have the bright part of the image in the lower left or upper right with a click on the brightness bar under the graph. Since the image starts with its beginning values, the line is a neutral diagonal, and even though it is straight, it is called a *curve*.



If you click anywhere on the graph, a midpoint is instantly created, and the curve immediately flows through it. The first click defines a gamma-like adjustment similar to the gamma adjustment in the Levels control. You can move this point anywhere on the surface of the graph and achieve all sorts of results on the image, both good and bad. Experience here will be its own best teacher. Play with it.

With a second click, a new point is created along the line. Now you have a control that is much more sophisticated than a simple gamma adjustment. With care, you can gently reshape the highlight area AND the shadow area while letting the curve flow through the middle of the graph unchanged. This gentle 'S' curve (top image) can go a long way towards softening up a contrasty original, making it look much more like a film image with more gradual extremes of highlight and shadow.



If you like the look of a particular curve, you can save it to a folder in your computer, and bring it back later, in order to apply it to other images. A folder full of curves is found on the CD, ready for you to play with, learn from, and modify to your heart's content. These are small files with a ".acv" suffix. (A folder on this CD called PSCurves contains a selection of these and some ".alv" versions which are similar but come from the Levels function.)

With more points added to the line, you can shape it into some very strange twists and make special effects. The end points are movable, too. You can use this to cause the line to flatten out at a certain value. As the bottom image shows, you can really warp the curve and produce solarized special effects interactively.

PART TWO. COLOR ADJUSTMENTS.

The next group of controls adjusts the color qualities of the image. Photoshop often has several ways of achieving results, and color adjustments are made in several ways. You may prefer some to others, but it is nice to know several methods that approach the idea in a different way. This first technique is unique in that it is so very quick, easy, and accurate.

2A. CURVES OR LEVELS AGAIN

(COMMAND OR CTRL -M, -L)

The Curves and Levels controls have a special feature useful in color control of your image. Three "eyedropper" controls with black, gray, and white fluid in them are used to sample the image's brightest, darkest, and most neutrally colored places for fast adjustment.

The middle eyedropper is the one with the greatest color correction use. The default setting is for middle gray. Double click on it to see where it is set on your computer. Not gray? Easy to fix. See those boxes labeled H:, S:, B:? B = Brightness. Enter *H: 0°, S: 0%, B: 50%* and the rest of this idea will work for you.

Now touch this Gray Eyedropper cursor on any object in your scene that would normally be close to neutral gray. It doesn't matter whether the gray part is light or dark, just so long as it is supposed to be without other color.

The white trim of a house in slight shadow, a whitewall tire or the dark gray of the tire itself, a gray patch of pavement, a gray foggy sky, a colorless rock, lettering on a sign, a silver car, a white shirt… all of these will work if you find the right place to click.

As soon as you click on your reference object, the entire scene adjusts to re-color balance to that sample. The control adjusts the red, green and blue channels in a way that turns the pixel you sampled into a neutral gray hue. The brightness of the sample isn't changed, just its hue and saturation.

Play with this control a lot. It's surprising to see how dramatically it works. After a while, you will become quite adept at improving the color of images shot in shade, indoor light, office light, and in errors caused by outright mistakes. Shade often tends to look cool, due to contamination from the blue sky. Indoor light can be recorded too warm, due to incandescent bulbs on dimmers. In office light, which is often greenish due to fluorescent lights, the color is dependent on the exact formula of the bulbs and no one fluorescent setting will get all of them perfect.

Then there are the mistakes. Some will be due to your forgetting to put the white balance on the right setting; some will come from mixed light situations that simply can't be correctly guessed by the Auto White Balance feature of the camera. When any of these show up on your computer screen, hit that center eyedropper in the Curves window, and start looking for a likely gray object in the shot.

The image above was exposed with the camera set to the wrong white balance. Fortunately, the strip of cement (arrow) was neutral in color, and simply clicking on it with the neutrality eyedropper created the vivid, realistic result.

3. HUE/SATURATION

(COMMAND OR CTRL -U)

Photoshop's Hue/Saturation control is rather like the control on your TV that pumps up the color and steers magenta faces back to pink. The Hue part should be used sparingly, since it moves all the colors in the image equally in Master setting.

The Saturation slider is the Kodachrome control. Here you can push the color up as much as you can stand. You can also use this control to drain all color out of an image and turn the picture into black and white.

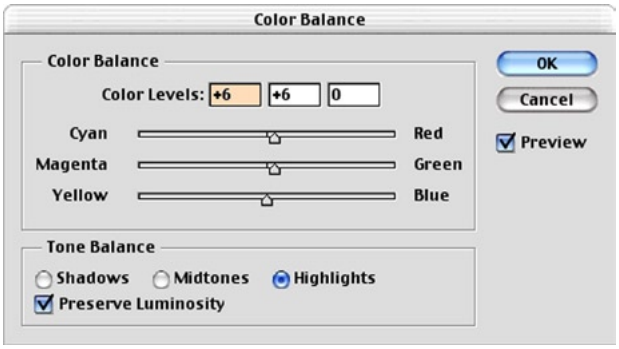
A special control on the page is called Colorize. Check this box, and the image becomes monochrome with an almost maroon, reddish look. Changing the Hue, Saturation, and Lightness sliders lets you turn your image into a wide range of tinted variations. With this you can simulate cold and warm monochrome and duotones, and a very convincing warm sepia effect.

COLOR FINESSES

Two controls allow you to really tweak the color of your image with very fine degrees of perfection. Although both look completely dissimilar, note in particular how each control lets you adjust shadow, highlight, and midtones of an image separately.

4. COLOR BALANCE

(COMMAND OR CTRL –B) (NOT AVAILABLE IN PHOTOSHOP ELEMENTS)

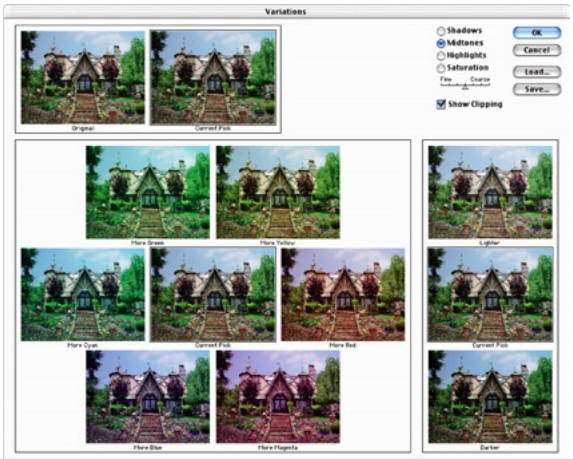


The Color Balance control will help you to perfect image color in a different way. Images shot in cool shade can be tweaked here with good results. When the pointer is moved, numeric indicators change at the top of the control window. You can move the pointer or enter numbers directly. A setting of *+20, 0, -20* will pull a subtle blue tint out of shadow areas, for instance. A sub box of controls invites you to work on the Shadows, Midtones and Highlights separately. Like the other controls in Photoshop, these beckon you to play with them. Play here is creative play.

5. VARIATIONS

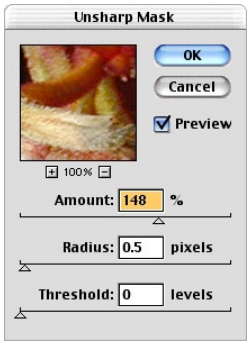
(IMAGE > ADJUST > VARIATIONS)

The Variations control is sort of the easy way to make your picture better. It isn't the fastest to work with, but for intuitive results, it's a winner. With your picture selected, you open the control, and a large window appears on your screen with 12 miniature versions of your image on it. A group of seven shows your current pick plus six color changes, three more show density changes, and two show the original and the current pick versions of your shot side by side. Controls in the upper right let you adjust the strength of color change for highlights, midtones, and shadows, plus a check box that limits the changes to color saturation.



Next: beyond these basic color adjustments are two types of fine adjustments that make your images look sharper, both on the computer screen and in printouts, and a special set of tools that almost exactly mirror darkroom techniques for locally improving the exposure in different areas of an image.

PART THREE. FINISHING TOUCHES.

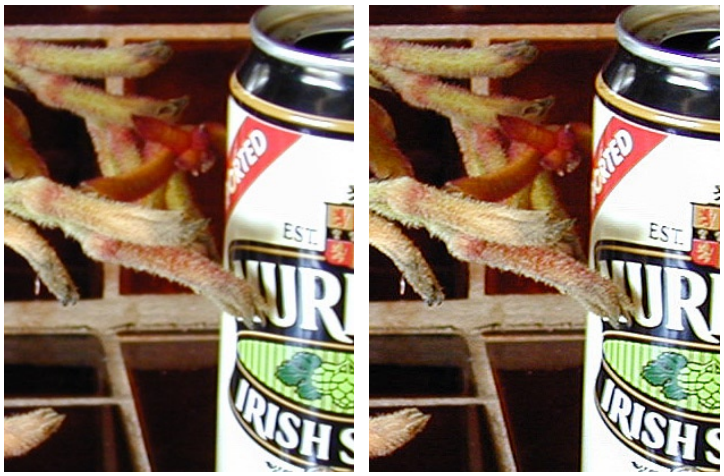


Digital images can be manipulated by space-age image processing techniques. This is one of them. Edges that were marginally well defined are now very well defined. Hair suddenly looks super sharp. The photographer's dream of focusing the image after the exposure is beginning to come true.

6. THE UNSHARP MASK

(FILTER > SHARPENING > UNSHARP MASK)

Who would think that the best control to sharpen an image in a computer would begin with the word, *unsharp*? But it does. The Unsharp Mask control is a filter in Photoshop in the group of plug-ins labeled Sharpening. Choose the *Unsharp Mask*, and a window appears with several choices and a small preview window. If the box labeled *Preview* is checked, the filter is already being applied to your shot. Click the *Preview* off and on to see the effect on your image. Or click on the preview image to temporarily show the original, unchanged image.



Without and with Unsharp masking.

The top slider shows the amount of "sharpening" the control is generating. Under that you have a window that asks for a number. This is the radius, in pixels, of the influence of the filter. It works *fractionally* as well. This is important. By influencing only about a third of a pixel with an entry of 0.3, you are keeping the effect very tightly bound to the contours in your image. A 1.0 pixel radius will extend the influence of the sharpening effect a full pixel in every direction from the one being worked on. Meaning an influence diameter of three pixels.

How it works is interesting. It heightens the contrast between pixels of different values. A dark pixel against a light pixel will become a darker pixel against a lighter pixel. Since the original values are slightly exaggerated, the boundary from one to the other is emphasized, and looks *sharper* to the eye. Locally, the contrast between the two original features is increased, but it is our vision system that interprets this as being a sharpness improvement.

It is real easy to overdo Unsharp Mask. Try numbers like these to experience how they work:

Radius	Amount
0.2	100 - 500
0.3	80 - 300
0.5	50 - 170
1.0	20 - 90
2.0	10 - 50

Large number entries in the Radius box have a different sort of influence on the picture.

Now try putting in a number like 60~200 and moving the Amount slider around. Notice how areas of the picture adjust their relatively *local* contrast into looking more vivid? Watch out for bright areas, though, they can easily become too bright and lose detail. Often a conservative use of this technique will simply add a bit of snap to the image. Try a Radius of 80 and an Amount of 15.

This control is capable of achieving several effects and is worth playing with for a while, just to get a sense of how its various settings interact.

HANDS ON

In a chemical darkroom, burning and dodging techniques are extremely important. Almost no negatives yield perfect custom prints without a little help. Good prints don't reveal that they have areas which are burned or dodged, and this is the goal; to concentrate some areas by burning, and hold back other areas by dodging, but not so much that people notice the result on the final image.

7. DODGING AND BURNING

(THE 'O' KEY)

Although from the names of these tools you might think they had something to do with a game of laser tag, the two terms come from techniques used in the exposure process in chemical darkrooms. Enlargers are low-brightness projectors pointing downward onto a piece of photographic paper. Usually, they project the image of a negative. Where the negative cast light, the developed paper turned dark.

Under the enlarger, a photographer would often move a disk of opaque black paper mounted on a wire handle, into the beam of light as it exposed a sheet of photographic paper. The exposures for a print are often ten seconds or more, and by stopping down the enlarger lens, the photographer could easily extend that to around thirty seconds, which would provide a lot of time to manipulate the light.

By holding this "dodging paddle" in the beam for a while over areas that were getting a lot of exposure, the photographer could hold back the light, thus lessening the exposure and making that part of the image slightly lighter. This brought out shadow detail. The blurred paddle shadow was moved during the exposure, so no obvious trace of its presence was perceived in the final image.

The opposite technique is called "burning." Some areas, where the negative in the enlarger was particularly dark, might need a bit of extra exposure to be delivered to the photo paper in order to bring detail into a very bright area of the print. When burning, the photographer would hold one hand in the beam, arranging fingers to let only a small ray of light reach the paper in the area needing extra exposure. Two hands were often used, sort of like a soft focus shadow puppet.

The two icons found with the keyboard "O" key in Photoshop are shaped like a dodging paddle, the black lollipop icon, and a hand forming an opening with the thumb, the common method of quickly burning-in an area. These are two distinct tools but they do the same things to a digital print that the originals did for enlarger prints. Plus a whole lot more. Use the shift key with the "O" key to select among the options of burn hand, dodge paddle, and saturation sponge. Notice how the last brush used with each option sticks to it, changing back to where you last left things.

The top image is what the camera recorded, a table in the corner of an artist's living room. Wouldn't it be nice to re-light the scene, bringing out shadow detail, and suppressing some of the brighter highlights? Burning the highlights and dodging the shadows produced the bottom result.

DODGING

To see the shape and limits of any brush as you work, open the *Edit > Preferences* window and select *Display and Cursors > Painting Cursors > Brush Size*. Select the dodging tool, and also select a large soft brush from the brushes window. The *Options* window shows two things. One is a choice among highlights, midtones, and shadows, and the other is for the strength of exposure. Set the *Exposure* to about 25, and select *Highlights* from the list. Move the tool over a fairly dark shadow area, click, and drag. Notice that the shadow area lightens, but anything very dark or black doesn't. Only tones above black are lifted proportionally. The brighter they were originally, the more they are lightened.

Try changing the option to read *Midtones* and try it on another area. The behavior difference is subtle, but you can see how it more aggressively lifts middle densities than darker detail. Changing it to read *Shadows* causes the darkest parts of the image to lift but not highlights. This is a big improvement over the darkroom version, which changed everything in all tonal ranges at the same time.

The smaller the *Exposure* numbers, the less the influence of the tool on the image. With small numbers, you can go over an area several times to build up the effect you want.

BURNING

Using the Burn tool is very much the opposite of using the Dodge tool. Here you are darkening the areas you are working on. If a highlight is too bright and indistinct, the Burn tool may help. As with the Dodge tool, a large soft brush is usually your best choice. Here, too, smaller *Exposure* numbers and multiple passes will build up the density you want. With Burn, the exposure option that works best is usually *Shadows*. Now, only pixels that are lower than pure white will be affected proportionally. The brighter the original, the less they will be influenced.

After playing with these options for a while, you will begin to develop an intuitive sense of how they work. Now you will be able to look at an image and start thinking about fixing the shadows, highlights, and local areas of brightness in new ways. You will no longer need to accept the limitations of the lighting in the original image. Experiment with it enough to see how far you can take the technique.

In fact, it is a good idea to take it too far on a few shots, just so you can see what too much of a good thing looks like. As a general rule, if you look at a shot and can immediately see where it was burned and dodged, you've gone too far.

SATURATION/DESATURATION

Since we are already here, a third tool appears with the burn and dodge tools: the Sponge. It can saturate or desaturate colors locally in the same way the other tools operate, on a small or large area, and the *Options* window adjusts its effect. No equivalent tool exists in a chemical darkroom, so that sponge icon has no direct equivalent. Here it behaves more like a sponge soaking up paint from a watercolor, or washing on dye in an exotic coloring technique. The digital darkroom borrows its metaphors freely from all the graphic processes. Only the red coat here has been boosted in saturation, leaving flowers alone.

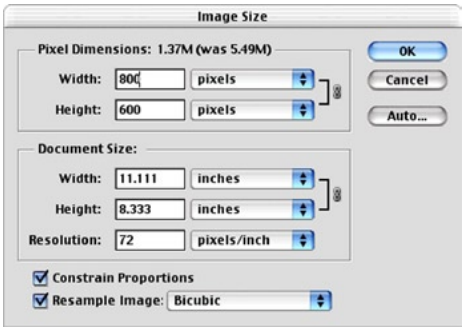
CONGRADUATIONS*

That wasn't so hard, was it? These seven techniques are the key to digital manipulation for tonal scale and color adjustment in Photoshop. Moreover, you have touched the Tools, Control Windows, Filters, Preferences, and Save systems of Photoshop along the way. Each was easy to access and operate. Your fear of them is hereby declared obsolete. You deserve a diploma. Nearly all of your future explorations in Photoshop will be variations on these familiar procedures.

As you use these tools more and more, you may begin to realize that one of these controls has much more influence and capability than the others: the Curves control. Except for color saturation, the Curves control can achieve most of what the other controls do for tone and color. As your experience with it grows, so will the quality of your creativity in this digital dimroom.

One more post-graduate lesson:

While the Unsharp Mask tool can perk up the effects of low or no in-camera sharpening, the camera has the image in memory before compressing and storing it, so the very sharpest images with the fewest artifacts will probably result from appropriate in-camera sharpening. With the DSC-F707/717 the Image Sharpening control may be set to its Normal (0) setting without fear. Experiment with shots made using Low in-camera sharpening followed by judicious Unsharp Mask tweaking.



If you are preparing images for use on the Internet, it is doubtful that you will need to display images larger than 1024 pixels wide. Photoshop's scaling tool, *Image > Image Size > Resample Image: Bicubic*, produces the cleanest results. Specify a dimension in pixels in the upper entry windows and the rest of the page will calculate itself automatically.

For the best results apply any sharpening *after* re-scaling your shot.

*Congratulations on graduating.

Chapter 5

...How Do I?

Getting Everything Right

The single most valuable tool you can have is not your camera, or computer, or printer. It is the ability to look at your images and become critical of what you see. Get rough with yourself. Become your own worst critic. Attack your images with an analytical eye and seek ways of making them better through cropping, re-framing, correcting or even re-shooting.

As long as this goes on inside your head, people will assume you are extra creative. Surprise—that's exactly what extra creative people have always been doing—thinking extra critically about what they are focusing on. Imagine the inner dialogue...

Well, what do you think? Pretty nice, eh?

Are you nuts? You call that nice?

Hey, back off. The exposure is...

...the only thing you got right. Just look at that background.

It's not about the backgrou...

Looks like the horizon has a distinct... er, "tilt" to it, hmm?

Should I re-crop it and straighten it out?

Odd, how the tree grows right out of her head, eh?

ⓘ = InfoBite

Of course, if you mutter this under your breath, somebody may hear you and suddenly your cover will be blown, but as long as you keep it to yourself, you stand a good chance of becoming your own best guru.

Some people seem to have a knack for finding the right composition or spot to stand to get the right shot. Some people can learn a language in six weeks, too, but we all learned to read and photography is less difficult to pick up than that.

Sure, there will always be the very highest achievers in *any* medium, but this isn't about them; this is about your learning curve as your inner guru steers you toward digital enlightenment. This long chapter will add to the skills that lead toward that growing awareness.

The first thing that will help you is *knowing your camera back-ward and forward.* It's also the second and third thing.

The primary piece of equipment you will be using is the photon, the basic particle of light. Soon you will learn how to organize them into images. Since they are spraying around the environment all the time at the atomic level, you will need to exercise a bit of control over their activities.

The camera will assist in their capture.

As you experience the camera, it stops being a *thing* and starts being an *avenue*, a means to an end, a tool with abilities and boundaries that will facilitate some things, and hold up others. As an object, it will fade away and become less visible to you. After a few months, you will be occasionally surprised when a stranger comments about the camera.

REPEATING THEMES

This chapter deals with the practical aspects of camera management and strategies for getting the most usefulness from this instrument. Some of it repeats ideas discussed in earlier chapters or nearby topics so you can jump to an idea and get a self-contained answer. Most of it is new, or fleshed out with ideas based on long hours of experience. (All entries are live hyperlinks.)

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HOW DO I POWER THE CAMERA?

You can't wind it up or feed it a sugar cube. The camera eats only one thing: electrons. Either you plug it into the wall or you give it a battery to sip on.

A fully charged battery will last for varying amounts of time depending on your modes of use. Flash exposures use the most power, and playback of stored images uses the least. In camera mode it is not unusual to be able to run still-image, non-flash sessions continuously for over two and a half hours. In playback only mode, you may be able to power the camera for over five hours continuously. See? It's not such a glutton.

With every shot a camera flash shot, you could use up a full charge in as little as half an hour, but you would have to be working fast to drain the battery that quickly. In a practical sense, the battery is good for about a day of frequent use. If you need to power the camera all day, day after day, as on a vacation, you would be wise to get a second battery. Look for the Sony "M" type at stores that also sell the camera.

With every DSC F707/717 comes an AC-L10B charger (or a plug-differentiated variation for cameras purchased outside of North America) and an NP-FM50 InfoLITHIUM™ (M-type) battery. The charger works with both 120 and 240 volts making it useful nearly everywhere in the world—assuming you have the proper plug adaptors.

The charger also functions as an AC power unit, although the plug arrangement on the camera makes it somewhat problematic to power the camera and peer through the Finder at the same time. The charger/power supply recharges the battery in the camera, not externally, but if you wish, either the AC-SQ950 external dual battery charger or the BC-VM50 single cell charger (pictured) is available for the M-type Sony cells.

ⓘ No other batteries are available for this camera, so if you run out of power and M-type batteries, only an external power supply would allow you to continue. The power plug is non-standard, further limiting your options. To date, we have found no suitable external power supply.

A car power cord, the CPC-F1000 is available from Sony and it passes DC current from a car plug directly into the camera. Charging happens as long as it is plugged in with the camera switch off, and it's a bit faster than the AC supply. There's nothing like good clean DC power to charge a battery!

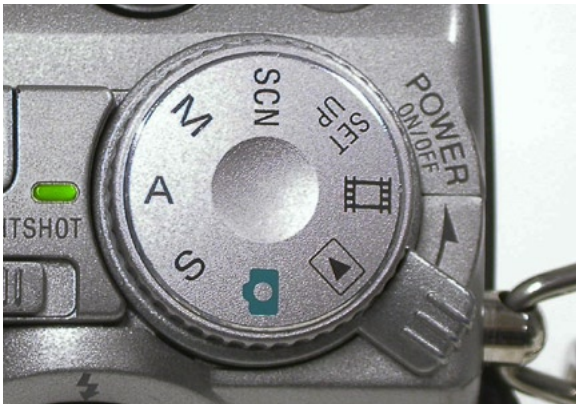
The batteries charge inside the camera in about five hours using the supplied charger. Their InfoLITHIUM™ name proclaims that they are of the series of Sony batteries that contain internal circuitry which monitors their energy flow and reports to the camera a good estimate of how much time remains if drained at the current rate. As you switch from camera to playback mode, an indicator on the LCD or Finder screen in the upper left tells you how much time remains in minutes. Playback eats less than half the power than shooting pictures does.

ⓘ The AC power unit only recharges the camera when the camera is turned off. So if you are shooting or viewing with the power supply attached, you are not actually topping off the battery at the same time.

ⓘ If you wish to charge more than one battery in the camera, a light on the camera uses reverse psychology. While charging, the small orange LED glows. When the charge is complete, the LED goes off. So swapping out the battery should be done when the indicator light goes *off*. This same LED tells you that the camera flash unit is fully charged during flash photography.

ⓘ The M-type InfoLITHIUM cells do *not* lose their charge in storage (unlike many).

HOW DO I TURN THE CAMERA ON?



The F707/717 features a round Mode dial coupled with a thumb-lever, and these look a bit like the sort of controls found on 35mm film cameras. The lever can be moved through a 40° arc, but only the *last* 10° is active. You can feel the spring becoming slightly more resistant as this last bit of throw is encountered, and only at that spot will the switch that turns the camera on or off make contact.

Upon startup, the LCD or Finder briefly declares that this is a "Cyber-shot" and it uses a Memory Stick. It also shows you the time and date. If a battery is present in the camera, an added graphic proclaims its presence with a graphic bar labeled InfoLITHIUM™.

ⓘ If you have the charger/power supply connected, and leave the camera ON for ten minutes, the LCD screen goes into an "attract mode" that displays a sequence of graphics and animations listing camera features and benefits. This feature can be turned on or off in the Set Up mode. Your camera hasn't gone nuts, it's simply trying to look cute.

Startup for the F707 takes about two and a half seconds from completely un-powered to being ready for your first shot. With the external power supply it powers up about a second faster. The F717 is a hair faster at just over one second. The start-up sequence shows you the live scene about half a second before the camera is actually ready to start an exposure sequence.

HOW DO I STORE IMAGES?

The Memory Stick media must be present for both capturing shots and for playback of images. A 16 or 32 Megabyte Stick is supplied with the camera, but this is only good for a minimum number of full-size shots made at the Standard compression setting. Without a Memory Stick in the camera, Playback mode becomes a blank blue screen and the words NO MEMORY STICK stay on the screen through all other modes except Set Up.

You can press buttons, set preferences, ISO, image size, et cetera, but no shots can be taken until a Memory Stick is present.

The Memory Stick media has a switch on it that locks its contents. If this switch is in Lock position, the Stick can't be written to, erased or formatted within the camera.

ⓘ When working with a number of Memory Sticks, you can lock ones that have been filled, thus preventing accidental loss of images. A little switch on the bottom slides over to prevent them from recording or re-formatting.

ⓘ That *will* confuse you when you forget that you locked it.

ⓘ Memory Sticks are so small that you could drop one and never hear it hit the floor. I've done it; I've lost one that easily. It is worth your while to create a way to store them out of harm's way. Simply dropping them into a pocket is not a good idea—especially a pocket that contains other things. Memory Sticks weigh less than a coin, and who among us has never lost a coin?

Storage and compression are inevitably linked. TIFF images are *not* compressed and take the most space. Fine and Standard compression options represent JPEG (Joint Photographic Expert Group) standards that reduce the file size by an actual 9:1 and 17:1 respectively, when compared to the original file size. Compression works with small areas of detail directly. Highly-detailed subjects cause larger final files than images of gradually changing tones.

The 1% artifact. Here's a tiny slice of an image peppered with an irregular pattern of 1% deviated pixels. The other image is straight. Can you see the effect? I can't, either, but I could just barely detect it when I added the noise. View huge. (Bottom image has the noise.)

During image compression, the picture is broken down into small square tiles of eight by eight pixels. Each tile is analyzed into small, easy-to-store strings of code that approximate its original look. That new code takes up less space and it can be so close to the original that your eyes would never see the difference. In Fine mode, the original and compressed image are within 1% of each other for nearly every pixel in the entire image. How visible is a 1% difference? Take the image test at the left.

Fine compression is the maximum quality, but Standard compression isn't far behind. To maximize the number of shots you gather, look into Standard. Shoot images of the same subject in both settings, print them out and see if you can tell the difference.

ⓘ When you reduce the size of the image by scaling it down—the way you would for an Internet-size image—compression artifacts blend into each other and politely disappear.

ⓘ The iNovaFX Photoshop Action Filter called *iSORemover1* reduces grain and some JPEG compression artifacts (iDeNoiseHighISO3 folder). It is designed to remove noise from high ISO images, but it is worth testing to see if it improves any image you may have that shows compression artifacting.

HOW DO I SHOOT UNCOMPRESSED IMAGES?

You probably won't, but I'll tell you anyhow. The Sony 707/717 captures images from its sensors, processes them into RGB files, changes their size to your specification, enhances them with your preferred degree of sharpening—and *only then* compresses them into JPEG files for storage. When the images are held as RGB files, they lack compression artifacts and can be understood as cleaner, purer images, unsullied by the hand of further processing. TIFF files preserve this purity at the expense of file size. These Transferable Image File Format shots avoid compression completely. So an image saved this way has the full original values of each color layer.

The trouble with a 5-megapixel TIFF image is that it takes nearly 15 million bytes of memory to hold onto the picture—five megabytes for each of the three color layers. That will instantly reduce your 128 megabyte Memory Stick to about eight exposures. Not only that, but full size TIFF images take about 20 seconds to write into the Stick.

If that appeals to you, by all means, shoot in TIFF mode. Otherwise you might be interested to know that a Fine compressed image is virtually indistinguishable from a TIFF image.

You can shoot images as TIFF files and Fine JPEG files and lay them on top of each other in Photoshop where you can turn the top layer off and on under magnified viewing, in order to see what the difference between shots actually looks like. In A/B tests, the actual numerical differences between a JPEG and TIFF image is less than a single percent deviation, on average, per pixel.

ⓘ When the camera takes a TIFF, it also parks a ".JPG" image on the memory card. The JPEG shot is a handy way to reference the large, hard to move TIFF shot. The JPEG image is inside the "DCIM" folder on the Memory Stick and the actual TIFF image is buried inside a folder called "IMCIF100," which itself is tucked into a folder called "MSSONY." How convenient.

HOW DO I STORE MY SHOTS IN MY COMPUTER?

Storing the image on a Memory Stick is only part of the problem. Some printers can read the Stick and make prints, but for true control, you need to transfer the image files to your computer.

Transferring is fastest with a dedicated Memory Stick card reader or Memory Stick PC card adaptor (for portable computers) the MSAC-PC2. There's even a Memory Stick card adapter that works in a floppy disk drive, the MSAC-FD2MA.

Next in line for convenience and speed is the USB cord included with the camera. When you connect it to your computer with the included USB cord, the camera shows up as if it were a USB-linked external hard disk. Downloading images with all of these methods of connection can be as simple as picking up a group of files from the Memory Stick and dropping them into a new folder on your computer.

Next is a dedicated USB Memory Stick Card Reader. I found this simple version for under $30 US. It simply plugs into any spare USB port and acts as a go-between from MS card to computer. The MS card shows up on the desktop as if it were a new hard drive, too.

Recent operating systems such as Windows EX and Macintosh OSX are more image-aware than prior systems but each computer's system of uploading images is slightly different, so you may have to consult your computer manual or the itssony.com web site to see if there are particular techniques for your system.

HOW DO I TRIP THE SHUTTER?

Although this may sound trivial, it is not. Tripping the shutter with an auto-focus, auto exposure camera—any camera—involves the focus and exposure system's timing delays. Live-viewing digital cameras ALL have this shutter response lag. The way you get past it is to learn the first rule of electronic image gathering: Half-press the shutter release to "prime" the camera into solving the focus and exposure ideas beforehand. Then hold the shutter release in this position until the scene is just right—and only then follow through with the full press that takes the shot. This technique does not work for every shot, but it will get you through most of them with a better sense of timing.

ⓘ Stabbing the shutter in hopes of getting it to work faster is rather like pressing the elevator button repeatedly in hopes of speeding things up. Worse; it physically moves the camera. Wiggles = smeared images.

HOW DO I FRAME THE SHOT?

Your options with the 707/717 are two: the 1.8-inch external LCD and the internal Finder. The external LCD is fine for indoor and low light situations and its screen is sharp and clear even though it is made up of fewer pixels than the internal Finder. When speed and intuitive framing are required, the inner Finder provides a good alternative. I would predict that as you get more used to the camera, your use of each viewing screen will equalize.

With the camera body rotated to its central click-stop, the whole thing feels more like an SLR—and it is, in a sense, since everything the lens sees is passed right to the viewfinder screen, but the image is electronic and ever-so-slightly delayed from being "real time" the way an optical viewfinder is. This can throw you off if you are not ready for it. Compensate for the electronic lag by tripping the shutter a fraction of a second earlier than you would with a mechanical camera. Making a move just before the result is anticipated is something you do every day, but the idea can throw you if you don't practice it.

The Finder creates a straight-through viewing path like an SLR. But finding the view with the 707 doesn't stop there.

ⓘ Practice shooting things that move—such as the interchange of leg positions in a striding person—in order to get a feeling for the delay. After a while, you will be able to predict the mid-jump point of a leap. Where the delay will not be compensated for are those surprise events that defy prediction. But that's always the case.

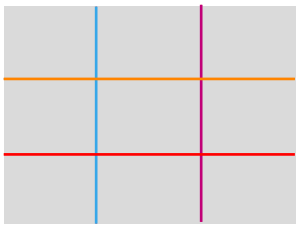
The zoom setting always starts up at full wide position. This gives you a first view of more of the scene so zooming into the picture framing position becomes a matter of cropping out unwanted pictorial matter. The zoom rocker zooms with two zoom speeds. The slow speed is slow enough to allow *very* precise framing.

ⓘ You can zoom with action in anticipation of a framing relationship, but as soon as you press the shutter release into its final position, the zoom stops. No zoom happens *during* exposure.

HOW DO I COMPOSE THE IMAGE?

Composing an image is different from framing an image, although the two work hand in hand. Framing an image has to do with its size, edge boundaries and timing. Composing an image has more to do with the relationship of elements within the frame, the center(s) of interest, the perspectives involved and the graphic dynamics of the shot. It sounds like a lot, and it is. Composing a picture means applying a sense of artistry to the image that will go largely undetected by most viewers—yet they will sense that this well-composed shot is somehow "better" than that poorly composed shot.

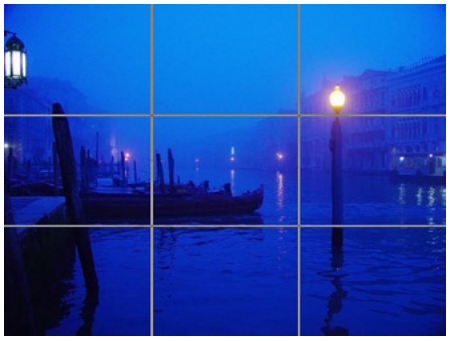
A few rules of composition will get you started.



Think thirds. Now all those years of playing tic-tac-toe are going to pay off.

1. Think thirds. Imagine lines dividing the image into three vertical and three horizontal slices. The areas *near* the intersection of those lines, and the areas *along* those lines, are prime places to rest features, centers of interest and major tonal changes. This isn't always the case, but if you were to shoot pictures for a week that always acknowledged this rule, you would come away with many more shots that looked good. How close to exact must you be? Not very.

2. Avoid symmetries. Don't put the sunset in the dead center of the image. Don't let the horizon cut the shot in half. Don't frame a person in the exact middle of the scene. Unless the intent of the shot, from a compositional standpoint, is to *emphasize* the symmetry of the situation—and that is rarer than you probably think—go back to rule #1.



SONY DSC-F707 ALL

3. Balance tells stories. A minor image of an interesting sub-feature can balance a strong, dominant center of interest in a way that brings a composition into a new aesthetic. Ideally, the element that balances the shot creates a story-telling relationship with the rest of the image. A little person in the corner of an image of the Grand Canyon not only brings scale, but it creates a sense of drama. "Big geology vs. fragile human" is the sort of story people understand intuitively, and shots that bring this kind of story out of the page have greater appeal.

Images with stories in them are rather like sentences spoken in language. They have a subject, verb and modifiers. The subject is the center of interest. The verb is what it is doing, accomplishing, moving, regarding or the state of its existence. Modifiers are other elements that balance, threaten, assist or change the subject/verb from some predictable outcome.

One other idea is present, just as it is in a verbal conversation: the context. Usually a context is the background, the environment in which the subject exists. Sometimes the background is the subject itself and the context is an emotion or mood to the image.

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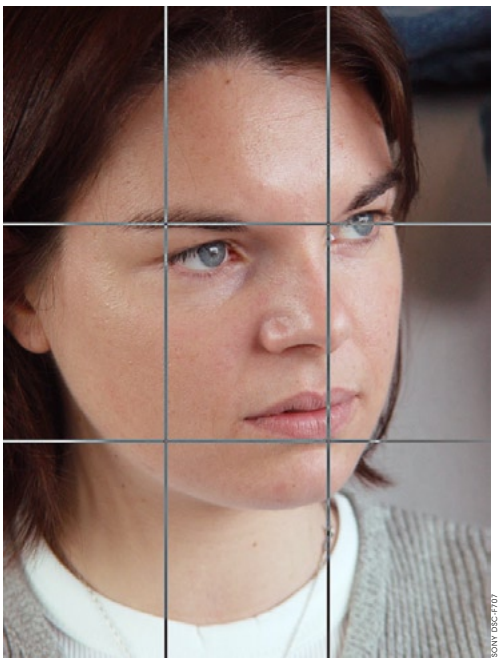
A story in the making. The guard is in the Italian White House garden visible from the street. The juxtaposed second guard creates an interesting counterpoint or sub-plot.



SONY DSC-F707

Most story-telling images are easy to caption. Even if you are making it up.

You may have to find the framing, prepare the composition and wait for the instant of best story-telling to appear before the shot is complete, but a moment's expression, a gesture, a fleeting glance or a chance encounter with a surprise element can make an ordinary image into a suddenly great shot. The moral to the story is that for images that involve people, animals or dynamic elements, capture as many instances of the changing scene as you can in anticipation that things will be more story-telling in one frame than in the majority of others.

An iNovaFX Action in the *iHandyChanges.atn* folder creates a rule-of-thirds overlay on top of any size or proportion of image non-destructively. All the 707 images on this page show its effect. iRuleOfThirds. A quick estimator.

HOW DO I CARRY THE CAMERA?

You can carry it any way you wish. After carrying it all over the world, I've developed favorite ways and now carry the camera without pouch or bag much of the time.

The shoulder strap that comes with the camera is not a *neck* strap. It has a clinging swath of rubberized material in the middle that is designed to keep it from slipping off a cloth surface such as your shoulder.

I carry the camera to my left side and keep it under my coat or jacket most of the time. By flipping the strap so the clinging material is not in contact with my shirt, I can bring the camera up to shooting position quickly and still have the strap wrapped around my shoulder. When I let go of the camera and open the left side of the coat, the camera returns to a protected position under the cloth or leather, hanging lens down, at about waist height. People don't see the camera until I bring it up to shooting position, so it stops being a walking advertisement for pickpockets and candid subjects. Often it is better to look like just another person and not another photographer or tourist.

A 1.1-inch split key loop that I connect to the right camera strap attach point becomes a quick anti-drop finger ring. The lens cap cord is attached to this with just enough relief to not hang up anything. A quick forward thrust on the cord pops the lens cap out of the lens hood (See the Accessories topic later on) and the camera can come up to eye level without the strap clinging on my shoulder. The cap dangles free and often is wrapped around fingers to keep it from getting in the way. That may sound complex, but it solves issues of carry, shade, cover and speed.

If I disconnect the camera from the strap, I immediately thread my right index finger through the split key loop, turning the entire camera into the fanciest, heaviest novelty ring around. The good news is that it is very difficult to drop the camera out of my hand at this point with the safety link to my finger.

HOW DO I STABILIZE THE CAMERA?

Everybody thinks of stable cameras as being on a tripod. Sure, tripods are stable, but they are unhandy for some types of photography. Still, you can use a tripod four ways:

1. As a stable platform for a non-moving camera. This is the way most people think of them. You don't even need to hold on to the camera in this mode.

2. As a copy stand. By extending one leg significantly farther than the other two, the pan-head of the tripod sticks out to one side of the center column. Artwork or objects on the floor (or table) between the two shorter legs can now be photographed from directly above, providing that the legs themselves don't cast unwanted shadows on the subject. Weight on the back leg may be needed for stability.

3. As a brace. Stop thinking of the tripod as meeting the floor and start thinking of it as a triangular brace you can put against other sorts of objects for stability as you continue to hold it. Where appropriate, it can be used against walls, steps, furniture, trees, parts of vehicles and irregular terrain as a momentary stabilization bracket. As long as you exert enough force down through the center-line of the tripod, it will stay still. Just don't let go.

4. As an extension of your own arm. A camera attached to a tripod is really a camera with a huge handle under it. With the tripod legs folded against the center column, you may be able to lift the entire camera six feet (2 meters) over your head or out of a window. Since this effectively keeps your finger off the shutter release, the self-timer or a remote release must be brought into play. The Sony RM-DR1 wired remote control has On/Off, Zoom and Shutter Release controls on it that duplicate the functions of those controls on the camera. It's not the sort of thing you would use every day, but it lets you perform vital functions about six feet (2 meters) back from the camera. You did insure the camera, right?

How you hold the camera has a lot to do with how steady it is for longish exposures. The least stable grip is out at arm's length, using the LCD as a viewfinder. But sometimes holding the camera over the heads of a crowd will give you shots only Shaquille O'Neal could otherwise get. The rotating camera body makes shots like this possible, but it doesn't make them stable. Use the technique with shutter speeds of 1/125th sec or faster until you get good at it.

SLR mode. Elbows tuck against the rib cage, plus support under the lens with the left hand, firm grip with the right and the eyepiece in direct contact with your brow. Solid!

ⓘ The 707/717 is a two-handed camera. You cannot operate it hand-held with only one hand for very long. Okay, you can take vertical shots with one hand, but that's about it. Otherwise the heavy lens may droop and the idea of hand-held images of the floor takes over.

By holding the camera like a long-lensed 35mm SLR, you add body mass to the stabilization issue. This means right hand on the camera body and left hand gripping under the lens with your palm facing your chin. Firmly press the camera into your eye as you use the Finder for framing. Your two elbows now join your chest for stability and the hand/face/hand combination creates a very stable platform.

With the camera body rotated for viewfinding from above the lens, a new, lower point of view is achieved with built-in stability caused by lower hand positions. A camera held at waist height is generally quite stable. Longer exposures of 1/15th sec or 1/8th sec are often successful here because the arms and body are not under tension. It helps to lean your shoulder or legs against something, too.

Sitting down provides you with a very stable platform and resting your hands against a solid object as they cradle the camera can make exposures of up to one full second turn out sharp. Your hands may vary, and practice makes perfect, but finding your personal best in terms of stability *before* you start gathering valuable images will only help.

When no tripod is available, there is always the Q-Pod. Okay, that's quibbling on my part, since the Q-Pod is really a tripod of sorts. It has no pan head and no center column, but it does have three extending legs and folds up flat under the 707/717's lens so well that it remains on my camera all the time. I can't tell you how many hundreds of times it has come into play as a camera stabilization device functioning as a tripod, vertical grip and support rest that gives the camera legs when casually placed on a table.

Now every table, post, tree and surface becomes a source of stability. If the supporting surface is soft, such as a cushion, and hand interaction with the camera would jar the image, trip the shutter with the self-timer.

ⓘ The self-timer is slow, because it takes ten seconds to operate. But since the camera takes about a

full second to auto-focus and compute the exposure, you can press the shutter release with a quick jab and let go of the camera before the exposure begins, turning the natural focus and shutter delays into a short-term self-timer. In a stable position, hands off is more steady than hands on.

With the camera shoulder strap attached, you can use tension from your body *through* the strap to assist in stabilization. By pushing the camera out from your body, the tensioned strap becomes a rigid link to the mass of your torso and your arms gain a noticeable amount of control over the camera. At last, a good reason to be pushy.

HOW DO I CAPTURE THE MOST PICTURES?

Every professional photographer knows that by gathering a larger number of images, the chance for stray events to improve the shot increases. As you look through the pages of any book that shows quality photography—and just about any issue of National Geographic Magazine will do this for you—a growing impression of the value of the magic moment will emerge.

The work of Henri Cartier-Bresson will show you the "decisive moment," but his rolls of negatives will show you the many not-quite-so-decisive moments he captured in hopes that the desired combination of things would appear. In photography, the notion of quantity is a quality unto itself. So strategies that bring you more exposures will bring you more moments and more good images.

Memory Stick capacity limits the number of shots you can gather. Fortunately they don't weigh anything, so you can have a bunch of them with you and never feel burdened. Unfortunately, they cost money, and that will limit the size of your bunch.

The 707/717 delivers a sharp full-size, 5-megapixel image, but it also delivers a sharper 3-megapixel image at 2048 x 1536 pixels than any 3-megapixel camera. Although the physical dimensions of these smaller images are only 80% of the size of the full shot, they contain about 98% of the effective image detail you gather with that full-size frame.

Shrink / Expand. This detail from a 5-megapixel full-size frame was reduced in Photoshop to 2048 pixels wide (center), then enlarged back up to its starting size of 2560 pixels wide (right). The loss of detail is not worth giving up 40% of your memory space. When this image is viewed at 200% scale on your computer, it is a 1:1 crop from a full frame.

ⓘ Take two exposures of the same detailed setup at 2560 pixels wide and 2048 pixels wide and print both of them to the exact same dimensions as 8 x 10s and 5 x 7s. Now ask people who don't know which was which to comment on them. Then factor in that the smaller image takes up exactly 64% of the memory space of the larger one. Only you can determine if giving up a small percent of the image quality is worth the 36% more images, but I shoot this way quite often.

When the day has produced an unusually large number of images, you may find yourself running out of storage space. Two strategies may be of help, especially when combined. Smaller files from more compressed images and shrunken shots.

SXGA images are only 1280 x 960 pixels in size, but that makes a really good looking 4 x 6 inch print (actually 4.5 x 6 inches or 113 x 150 mm). Since all smaller-size images are in-camera reductions of a full-size capture, all smaller images are more pixel perfect, and the SXGA frame is *flawless*. Every pixel represents maximum definition. And it would take four SXGA images to cover the same area of a full-frame shot. In practice, you can shoot about 350% of the number of full-frame images per megabyte of storage space by gathering this size image. Why not 400% (since each is 25% of full size)? Because the full-size shot compresses more efficiently than the smaller, pixel-perfect files.

ⓘ You can go into Playback mode and convert previous images into smaller ones by setting the image size to SXGA (or 2048 frames if you have been shooting in full-frame mode previously) then use the Copy function to make a new, smaller file at Standard Compression. Now delete the original file and you will have opened up more file space. Check out *How Do I Edit in the Camera (pg 5-17).*

HOW DO I SHARPEN THE IMAGE?

Digital images are processed by the camera computer in ways that enhance outlines and detail. When this enhancement process goes too far, edges of objects look artificial and too much like TV images. That Sharpness control on your TV set is rather like a simple version of the *Sharpening* control in the camera menu. Setting it too high can produce edge artifacts and setting it too low can make the picture look too soft.

Sony has implemented a sophisticated sharpening system in the camera and the default "0" setting is your best bet. But you have two more clicks each of greater and lesser sharpness. As the contrast range of your subject matter increases, the need for more aggressive sharpening diminishes, and vice versa.

Graphics such as paintings, which have the dynamic range of reflected pigments, will tolerate more sharpening than natural real-world scenes with high contrast detail like this shot.

In camera sharpness control. The softest, least grainy image (left) used the -2 setting. The zero setting is middle and most extreme +2 setting is at the right. Notice the increase in grain that accompanies increased sharpness. View at 200% or above.

You can use the Sharpening menu item for effect. Set it low for images that should have a softer quality, such as portraits or poetic still lifes, and set it high for images that should have a dramatic, edgy quality, such as sports action pictures.

ⓘ In Photoshop the Unsharp Mask control can add sharpening to the image after the fact, but be aware that sharpening is like a haircut; once the camera has applied sharpening to the original image, nothing can precisely reverse the process. "Unsharp Mask" sounds like something that would blur an image, but no, it really *masks* "unsharpness."

ⓘ Post exposure sharpening is possible in Photoshop, and you can use the iNovaFX iSharp -series actions. But the best results come from in-camera sharpening routines.

Daylight white balance. Completely normal looking.

White balance off a puffy cloud above the image.

White balance off the redish roof (arrow).

White balance off the distant low sky (arrow).

HOW DO I BALANCE THE COLOR?

Cool and warm images have more blue or gold, respectively. Daylight is "cooler" and incandescent light is "warm." Not that the sun isn't hotter, it's just a blue vs. gold terminology convention. Artist and photographer slang.

For the greater range of images, the Daylight and Incandescent white balance settings of the F707 and F717 give the best results when used with the appropriate light source, and that gives colors a basic frame of reference. The 717 adds Cloudy and Fluorescent choices to the list. Overcast day? Use Cloudy white balance. Inside an office? Fluorescent may be best. Not sure? Try Auto white balance.

Daylight is the correct choice for use with flash units, too. You can use it under cloudy skies, as well, but images will appear cooler here, just as they feel cooler to your eyes. Often the sensation of cooler color won't actually look blue to your eyes but it can appear blue in photographs. Not just digital photos. TV, film and movies often show cloudy sky images as decidedly bluish.

Auto White Balance floats on a sea of color temperature. When the sun goes behind a cloud, the camera responds to the cooler, bluer image and warms it up slightly. When the afternoon sun enters into the golden hour before sunset, the Auto White Balance responds by slightly cooling the image and neutralizing the extra warmth. When you have mixed light sources, the camera seeks a middle ground and equalizes the colors of the scene.

ⓘ If you are unsure whether Auto or Daylight white balance is right for a lighting condition, take one of each and sort it out on your computer. The 707/717 allows such fast access to the WB settings that this is an easy option.

The ultimate white balance is from the Manual WB system. Point the camera at anything that is truly white or neutral gray, and press the Perform button below the White Bal selector. It takes but a second or two to make the reading, causing the camera to believe that whatever you showed it deserved to be portrayed as neutral in color.

ⓘ The eBook jacket has 12 White Balance Filters that cause the Manual WB circuits to create the effect of color filters over the lens. Slide the color insert out from under its clear plastic cover and re-insert it flipped over. The jacket graphic has color patches that will steer your camera into reacting as if it used color filters. Put the jacket graphic in the light you are using, point the lens at the color opposite the one you wish to "place" over the lens, and perform a manual white balance. The camera's RGB circuits attempt to neutralize that color and immediately cause the opposite tint to appear in subsequent images. Internally, the data created when you manually white balance is stored as a look-up file. Opposite colors on the jacket are connected to each other with a graphic dot.

ⓘ The Manual White Balance retains its last setting until it is set to a new Manual setting. It keeps this data through on/off cycles and battery changes.

HOW DO I FOCUS THE CAMERA?

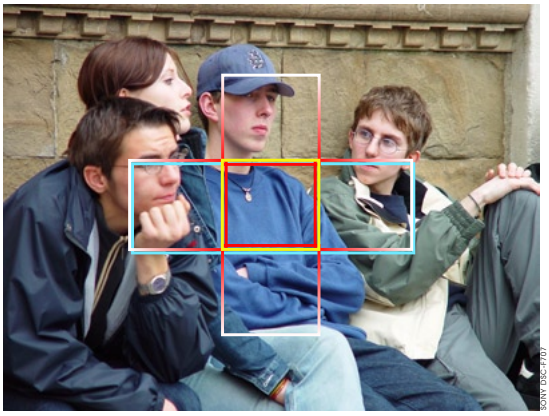
Too far, too near... just right. Auto-focus sequence.

Since Sony had so much experience with professional video cameras, it is not surprising to see that they have made a still digital camera with so many of the fast-acting, fast-accomplishing features video cameras thrive on.

The 707/717 contains a sophisticated auto focus system that acts quickly and accurately along with a much-appreciated quality: silence. When the auto focus system is active and the monitor graphic overlays are switched *On* (their default setting) a central area of the image is highlighted with small corner brackets. These outline the area of the image most sensitive to focus. When you cover the subject with this area of the frame, that subject will jump into focus. But initially, this is just for framing and composing, and it adjusts continuously as you pan around your subject lining up your shot.

On the F717 you can select the focus area from one of six settings covered by five areas. Press down the Jog dial and scroll quickly through the options. The image at right shows them all at once.

As you half-press the shutter release, the auto focus system now gets serious and performs a fresh, well-tempered focus operation. In the viewfinder you will see the focus "bounce" as the lens searches through the plane of focus to a point near by, then back through the zone of sharp focus to slightly beyond it and finally settling into exact sharp focus. This is an automated version of the way one manually focuses an image by testing to see what this side and that side of true focus looks like before adjusting the lens to an in-between setting. Auto focus is faster than you are. It takes only about half of a second. At the same time, the camera is solving the exposure equation. Both focus and exposure are temporarily held as long as the shutter release stays half-pressed.



The DSC-F717 has five focus zones you can quickly select with the Jog dial. A sixth, highlighted in light blue, covers the center three zones and latches onto the nearest object in this larger area. The F707 (top) has just one focus zone bracket marks.

How does the camera know what sharp focus looks like? It is looking for pixels that are near to each other yet report greater differences in values, meaning higher degrees of contrast. In particular, the system seeks lines and edge contours that show this sort of phenomenon, but if strong contrast isn't present, it considers less contrasty details.

When adjacent pixels are similar in value, it usually means that they are blurred. If you were to point the camera at a textureless blank wall, the auto-focus system could become confused, but most surfaces have a degree of texture to them—even if you can't see it in the viewfinder—and the camera will find it and lock to it.

ⓘ Blank blue skies are a major challenge for the auto-focus system. If the center of your shot is abundant with infinite blue—or any blank, featureless area—pan over to a subject at the distance you wish to focus, half-press the shutter release button, then reframe for the shot. The F717's multiple focus areas assists with off-center focusing.

Sometimes auto-focus is not going to be the best method. The subject matter may be too small, too delicate or too low in contrast to give the camera an unambiguous focus target. High contrast backgrounds can steal the focus away from lower contrast nearby subjects, and for times like this, there are several ways to use Manual Focus.

Next to the zoom toggle, the Auto/Manual Focus switch selects which system is operating. With the switch pushed forward, Auto Focus is engaged. With it pulled back toward the rear of the cam-

era, Manual Focus is active and an iconic hand appears on the LCD at the middle of the left edge of the screen (Hand = "manual". Get it?). Now the large knurled gray ring becomes a focus ring, rather like—but not exactly like—the focus ring on a camera lens. Turn the ring either way to change focus.

ⓘ Clockwise focuses nearer.

The major difference between this ring and a mechanical focus ring on most camera lenses is that this one never stops turning. It *feels* like it is linked to the glass, but doesn't stop turning at infinity or at maximum close focus. You must practice manual focus to sort out the feeling of this for yourself.

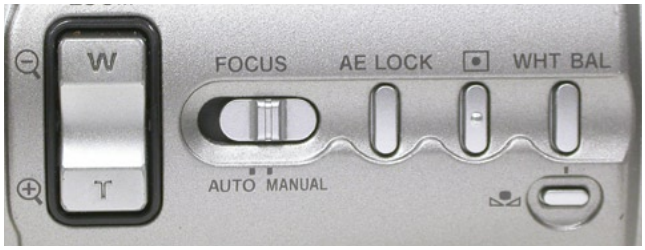
Manual focus distance is always expressed in meters.

In the Set Up menu the first item is called *Expanded Focus*. With this *On*, the manual focus ring switches the center part of the image to double size during manual focusing. It is an instant focus magnifier and as soon as you stop rotating the ring, the image drops back to normal size.

While you manually focus, a number appears on the left side of the view screen showing focus distance in *meters*. Americans have problems with meters since the US has yet to institute metric measurements (sigh) but for reference, a meter is about three feet six inches and ten feet is about three meters.

Focus strategies with the 707/717 include the ability to zoom in on a subject, achieve focus there, and then zoom back to a wider view knowing that focus has been maintained accurately. Videographers do this with professional gear all the time. With Auto Focus engaged, a half-press of the shutter release will lock focus and exposure, but you can still zoom out to frame the shot. But what if that were not your favored exposure?

You can zoom in, then click the selector switch to Manual Focus, preserving the current focus point, then zoom out to frame the shot. There is a danger here that you will forget to unlock the Manual Focus mode for your next shots. The problem is that you probably want to determine *exposure* at a wider zoom setting than you would use for focus targeting. For this, there is the AE-Lock button.



The AE-Lock button on the 707 is nearest the Auto/Manual Focus switch. Press it, and the camera immediately solves the exposure equation and a green "AE-L" appears at the top of the view screen. Now you can zoom in and focus in one of three ways: Half-press the shutter release, or switch to manual focus when zoomed in, thus locking it before reframing, or manipulate manual focus in tele zoom before reframing.

ⓘ If you find yourself using these several focus methods, you will wish to train yourself to form a mental checklist as you pick up the camera. Is the focus switch in Manual? Does the Manual icon show on-screen?

ⓘ The AE-Lock only lasts for one shot unless you continuously hold it down to lock the exposure through successive frames. Another way to lock exposure is to enter Manual exposure mode, M on the Mode selector, set the exposure there and simply avoid all automatic exposure computations.

ⓘ With fully Manual exposure and fully Manual Focus, the shutter response time doesn't need to include these systems, so it becomes somewhat faster. When the fastest shutter response is needed, eliminate automatic exposure and focus systems.

HOW DO I MAKE THE PICTURE BRIGHTER OR DARKER?

There is a concept floating through photography called Exposure Value, or EV for short. It is used two ways, as an *absolute* measure of brightness in terms of real-world exposures, and as a way of equating *relative* differences between exposures.

Three things make up a given exposure.

1. The sensitivity of the recording medium (the image sensor's ISO, for instance).
2. The lens speed, meaning its f-number or iris setting.
3. The time interval of the shutter, meaning how much time photons are gathered.

Actual EXIF data: 1/500 sec @ *f*/8 with ISO 100 sensitivity. Within a fraction of a stop of the "prediction" for full daylight.

Absolute EV. In absolute terms, EV value measures how bright conditions are from a standard amount of light. Each EV number is one stop, or exactly double, the light represented by the number below it. An exposure of one second at *f*/1.0 with ISO 25 sensitivity defines an anchor point: EV 0. (The zero is just a reference point along an infinite scale, so it doesn't mean there is zero of something involved.) This also equates to approximately one-quarter of a foot-candle of light energy. Full noon daylight is EV 15 in absolute EV light value—also meaning that full daylight is 15 stops brighter than one-quarter foot-candle, or almost exactly 8000 foot-candles of light.

Since the sun delivers virtually the same exposure every day, these values can be useful for expressing the sensitivity range of a camera exposure system or the absolute range of a light meter.

ⓘ The "foot-candle" that people talk about is a real thing you can approximate in the privacy of your own birthday cake. Light up one of those small candles in the dark and notice how much light falls on a sheet of paper a foot away from the flame. That's it. Pretty close to the one-foot-candle reference. Of course, the original "standard" used a flame of exact dimensions and burn qualities, but you get the idea.

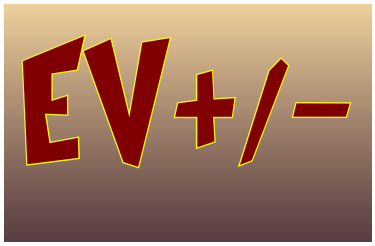
A second reference on the absolute brightness of full daylight is often expressed as this simple formula: 1/(*the current ISO*) of a second @ *f*/16 = full daylight exposure. With ISO 100, that means 1/100 sec @ *f*/16 should do the job. The sunbather above is a little under exposed by this formula, but the crowd on the Spanish Steps is right on.

Since the 707/717 only goes to *f*/8, that would require a 1/500 sec @ *f*/6.3 exposure to make a full daylight image. Try it and see. Set the camera to full manual exposure with these settings and blaze away in full daylight. It's always good to know that the sun is spewing out a reliable number of photons, eh?

Other side of the planet. This time it's 1/500 sec @ *f*/6/3 with ISO 100 sensitivity. Absolute agreement with the rule of thumb exposure.

Where light values are lower than EV zero, they are expressed as negative numbers, so it would not be unreasonable to express an ultra-low light level as EV –50 (this is an extreme example that might be best suited to the Hubble Space Telescope) or to say that an exposure meter was capable of measuring accurately a range from EV –12 to EV +18.

Relative EV+/-. All of that becomes academic when using EV as a way of expressing deviations from a metered exposure. The camera reads the scene and draws a conclusion from the light values it sees. In a sense, this is a *recommended* exposure and not an absolute determination. When a lot of bright sky dominates the shot, you will have to intervene and gently inform the camera that you want a different exposure, thank you. To do this, you adjust the EV+/- system. For a scene containing a naturally extra-bright sky, you will need to tell the camera to overexpose the shot, thus making the sky in the picture look appropriately extra-bright, the way it does in real life. If you didn't, the extra-bright sky would fool the meter into *underexposing* the image making the sky look normal and the foreground look extra dark.



Next to the shutter release is a smaller button that switches on the EV+/- adjustment in Auto exposure mode. The gear-edged *Jog Dial* in front of the shutter release can now be rotated, producing an EV number from +2.0 to –2.0 in the upper right corner of the viewing screen. This number tells the camera exposure system to compensate above or below the recommended exposure by the number of stops in the EV number. So with a setting of +2.0EV, you are telling the camera to allow four times as many photons through the lens as the camera believed was required. EV values can be adjusted up or down in 1/3-stop increments—just enough to see as a useful difference in exposure changes. Keep in mind that when an ISO rating and shutter speed and f-stop are all mentioned in the same breath, changing any of these alters the exposure. But changing any two in a symmetrical way simply expresses an alternate setting, not a different exposure. Twice the sensitivity plus half the shutter speed equals the same exposure.

Equivalent exposures									
F- number	*F*/2.0	*F*/2.8	*F*/4.0	*F*/5.6	*F*/6.3	*F*/6.3	*F*/8.0	*F*/8.0	*F*/8.0
Shutter speed	1/1000	1/500	1/500	1/125	1/80	1/320	1/250	1/60	1/500
ISO	100	100	200	100	100	400	400	100	800

ⓘ The ISO 800 called for in the last column isn't an impossible dream with the DSC-F707. Although the camera only *shows* ISO choices of 100, 200 and 400, that doesn't mean exposures can't be made at ISO 800 or higher. But in order to see images made at these equivalent exposures, you will have to do some "ISO Recovery" in Photoshop later. Special iNovaFX Photoshop Actions bring these too-dark shots back to a more normal-looking result. See *How Do I Shoot in Available Darkness* (pg 5-20 farther on.) The F717 *does* go to ISO 800, so it is able to dream more sensitively.

When the EV+/- compensation is dialed in, the Auto exposure system adjusts iris, shutter speeds and ISO (but only if it was set to Auto as well), while taking into account this new recommendation.

ⓘ As you swing the camera around to a new subject, the compensation you called for with the EV adjustment does *not* go away, but the new subject may not need it, so you have to be aware that setting an EV adjustment is a two-edged sword. You can cut or increase the exposure with it, but you won't like the results if you forget to zero it out after you have finished with it. Switching the camera off doesn't dismiss this setting—you have to do it yourself.

As you move among Aperture Priority or Shutter Priority exposure modes, any EV+/– setting you had made for Auto exposure mode is retained. In fully Manual exposure mode, the EV+/– number behaves differently tracking exposure, while showing you how far from the camera's estimate you are, but it doesn't participate in adjusting things. When you see it telling you +/-2.0, you know that the camera is set way off from a normal exposure—in the camera's considered opinion.

ⓘ If you like the control of fully Manual exposure mode, but end up adjusting things until the EV number reads 0 all the time, you might as well have been shooting in one of the other modes. The zero reading indicates the exposure that the camera would have made anyhow.

HOW DO I ZOOM THE LENS?

With two zoom speeds, the zoom toggle is very precise in its adjustment of the zoom lens. Zooming can be done before or after a shot, but not *during* an exposure, except during movie mode shots.

ⓘ The F717's focus ring becomes a second "zoom demand" control when the camera is in Auto focus. As you turn it, the zoom responds proportionally but with an ever-so-slight time delay. The feature is so well implemented that it almost feels like a direct mechanical link to the zoom mechanism.

ⓘ You can zoom into a subject for critical focus, then lock that focus by immediately switching to Manual Focus. You can also lock focus by half-pressing the shutter release and holding it while you zoom back to your framing position.

Easy as pie. Piece of cake.

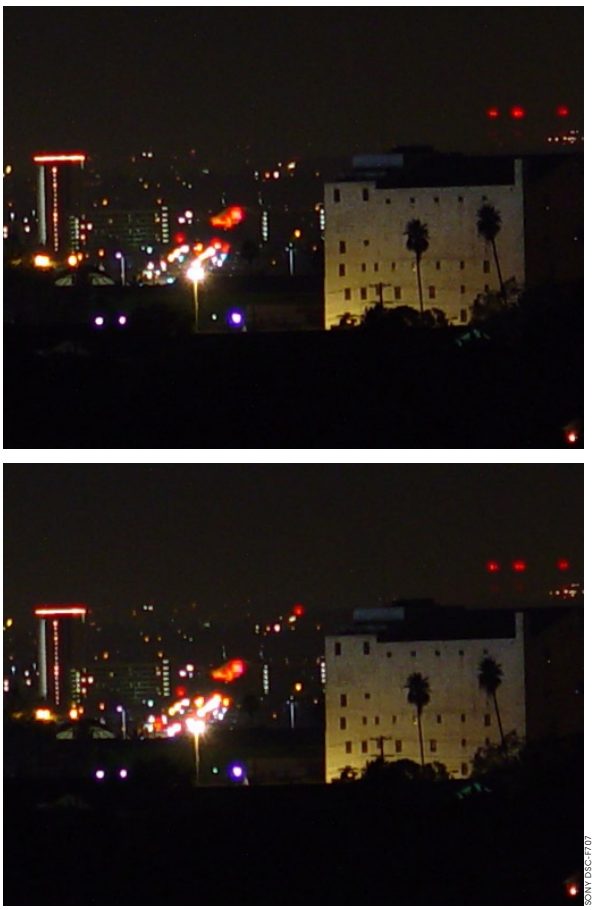
HOW DO I USE DIGITAL ZOOM?

Don't use digital zoom. It lowers image quality and zooms seamlessly right past the end of optical zoom. Switch it off.

Digital zoom enlarges only the center part of the image and spreads it out over the whole frame. With full-frame images, it softens the shot—you could crop the image later in your computer and achieve the same practical effect. So why would you ever want to?

I take that back. Digital zoom has a very good use. When you shoot frames smaller than full-size, then some degree of digital zoom may be useful after all. At SXGA, the pixel count is half of a full frame. A 2X digital zoom now operates just like a center crop from a full-frame image (example on the right), but any digital zoom ratio *less* than 2X will allow some degree of down-sampling to occur, thus making a sharper per-pixel image. But only VGA is smaller than SXGA in these cameras. In VGA's TV-size images, the quality loss from digital zooming is completely negligible. This gives you an in-camera zoom range of 10:1 when shooting Web-size VGA images.

So I guess there are times you can use it after all.



Which is SXGA+digizoom and which is a crop?
Both show the center 512 pixels of each shot.
(Bottom is the crop from a full frame.)

©SONY DSC-F707

HOW DO I PLAY BACK THE IMAGES?

Playback mode displays images on either of the two camera screens as well as throughthe A/V cord onto a video monitor. Both sound and image are supported. The larger camera back LCD has the most image "dots" and shows the best on-camera image. It is coated so reflections are minimized, and images can be seen clearly in shaded and interior lighting conditions. The display button above and left of the screen toggles all the screen graphics off, so you can see the whole image clearly.

If you wish to simply review the last shot you took, a left press on the Control button will let you see that image. One more press—or a half-press on the shutter release—and you are immediately in Camera mode again.

Any time an image is being played back or reviewed, you can zoom into it and move around inside the image using a combination of the zoom toggle and the Control Button with the latter behaving like a left/right/up/down video game control. An inward press of the Control Button will instantly jump out to the full-frame image, or you can back out by small jumps with the zoom-out toggle.

All of this is mirrored on the video out connection. Image quality of the video signal is quite good. See *How Do I Play Slide Shows?* on page 5-48.

When the light behind your subject is severe—ignore it! Expose for the foreground.

HOW DO I COMPENSATE FOR BACK LIGHT?

Sometimes you have to show the camera what is best.

The fastest way to expose for a subject that is in a strongly back-lit situation is to zoom in to the subject, half-press the shutter release to lock focus and exposure information, and zoom out before completing the exposure.

The next-fastest way is to use the spot meter. Now the area of the scene that the light meter is considering is a tiny, less than 1% square in the center of the image. A small "+" shows up in the dead center of the screen, indicating the size and position of the meter spot.

The small size of the sensitive area makes this camera able to read very specific areas of your subject. At tele zoom you can read a spot that is under 1° wide. For reference, the full moon is about 1/2° degree in diameter.

ⓘ After you play with the spot meter for a while, you will realize why it is a truly specialized metering system. It takes a bit of experience to understand where and how its readings are helpful or appropriate. Average Caucasian skin tones give a pretty good reading, but clothing, surface values, color and texture all read differently from what you might initially suspect. Practice.

ⓘ The spot meter or zoom-in metering technique is useful for the opposite of a back-lit scene: a performer in a spotlight is surrounded by darkness, typically, and this can also fool normal metering.

The most common error in shooting live performers is obtaining an averaged reading that overexposes the person on stage. Stage performances most often highlight players in dark or subdued illumination. By reading directly off the surface you wish to properly expose—face, costume, illuminated set piece—other elements in the scene will not sway the exposure estimate.

HOW DO I FORCE THE CAMERA TO FOCUS WHERE I WANT?

The short answer is, "Show it." One way to force the Auto Focus system to regard only the subject you want is to zoom in, half-press the shutter release to lock focus and exposure, then zoom back to take the shot. But that hardly works all the time. And it is easy for contrasty, detailed background matter to steal focus away from foreground subjects. For those situations, use Manual Focus mode.

Clouds often fool the auto-focus. So just to make sure, I targeted focus on contrastier detail (outlined), then reframed for the shot.

You can zoom into a subject, let the Auto Focus system settle in on it, then click the focus switch to Manual, thus locking in the current focus point.. In Manual Focus mode, you have the option of turning on the electronic focus magnifier through the *Expanded Focus* option on page one of the *Set Up* menus. The image now jumps, becoming larger, but only while you actively turn the focus ring.

See the earlier section on *How Do I Focus.*

ⓘ By setting focus in telephoto zoom, you are adjusting it for all wider zoom settings as well. So zoom in, adjust focus with the method of your choice, then zoom out to frame the final shot.

HOW DO I SHOOT IN AVAILABLE DARKNESS?

In spite of the old photographer's riff on "available light", (Other old photographer's mirth-fests include "The f-stops here," and "Hand me the focusing fluid") shooting in near zero light is a lot of fun with the 707 or 717. Once the exposure requires shutter speeds of 1/15 sec or slower, only very stable cameras can possibly get the shot with any expectation of uncompromised detail. The longest shutter speed I have obtained hand-held while maintaining exemplary detail was a chance 1/3 sec shot. And it was not a repeatable experience. Slow shutter speeds virtually demand a tripod—or Q-Pod—for successful, detailed images. But once that is solved, the entire world will open up with images that are far brighter than your eyes could ever see.

Just because it's night doesn't mean ALL exposures are long.

ⓘ In long exposures, anything that moves becomes a streak of movement. Anything that pulses regularly becomes a stream of dots or dashes over time. If a flash goes off during the shot—from another camera, if not your own for instance—a frozen image will appear among the streaks and blurs.

Extra long exposures open up a whole different sort of image gathering, and getting into it with a digital camera is the only way it can be done while seeing what you are accomplishing.

Using the Sony RM-DR1 wired remote release, you can trip the shutter without touching the camera. That allows the exposure to happen without slight hand movements wiggling the camera during

Sony's RM-DR1 remote cord, a must-have accessory for long exposures.

the shot. You can also use the Self-Timer and the camera's own focus time to trip the shutter after your hands have stopped touching it.

In *SCN-Twilight* mode, you can make automatic shots of night scenes with a shutter speed up to 2 sec. That will light up the night, but it is not the end of the story. In fully Manual exposure mode, you can shoot images up to 30 seconds in length. That will make a full-moon-lit vista at midnight look like a shot made at high noon, providing you used the right f-stop and ISO setting.

In Manual exposure mode, any shot made at 2.5 sec or longer will automatically trigger the NR, or Noise Reduction, system in the F707. The F717 kicks NR into gear starting at 1/25 sec. When it's active, a small *N* shows up next to the shutter speed number. Shooting with it is a bit strange; an image exposure is made in the normal way, followed by a second exposure, which is performed with the lens's internal shutter closed. It is a shot of nothing, but any flawed pixels and random noise on the imaging chip will be captured. The second exposure is exactly as long as the first, and the camera uses the second exposure to erase flaws from the first frame.

Rescued from obscurity with the iSO800.707 iNovaFX Action. This lifted the exposure a full stop.

ⓘ A manual version of this idea is available using the iFF-series of iNovaFX Photoshop Actions made for the F707. This technique allows you to take images that will contain noise and flaws, combine them in Photoshop with a separate frame made with the lens cap on, and cause any pixel flaws sprinkled across the long exposure image to fill with color from the surrounding well-tempered pixels. Several variations are available.

Since darkness is just a relatively lower population of photons, the designers have given you several camera sensitivities to use. Settings for ISO 100, 200 and 400 (and 800 in the F717) are for color images. Auto ISO settings stay well under the maximum ISO. NightShot mode with Auto ISO, behaves differently. The ISO there can drift all the way up to 2500! That makes for a grainy B&W shot, but wouldn't it be nice to have higher ISO for color images?

You can.

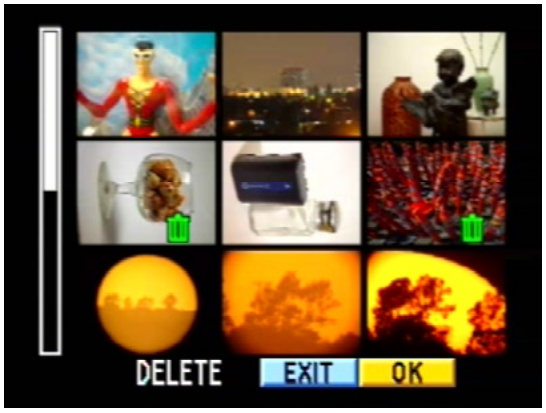
ⓘ If you shoot with the F707 camera set for ISO 400, but force the meter to *underexpose* by one stop, you will get the same exposure you would have gotten with ISO 800. So the setup for this is ISO 400 exposed at EV –1.0. Shutter speeds will be quicker, and the image itself will be not as bright. Underexposing by EV–2.0 collects images equivalent to ISO 1600. With the F717 at ISO 800, you can set EV-2 and shoot equivalent to ISO 3200!

Open the underexposed image in Photoshop and use the iNovaFX Photoshop Actions in the iSOFix.atn folder to lift the values of the underexposed image. The natural grain of the image makes the shot look like it was made with high-speed film. After lifting the values of the image, try the iColorDeNoise action(s) from the iColorDeNoise/DeJPEG folder to bring the chroma noise down. On some images, you may wish to run de-noise actions first.

Of course, the infrared NightShot mode avoids much of the need to follow these techniques. The light and extreme sensitivity of IR shooting puts you immediately in touch with super-speed monochromatic images, but shutter speed is prevented from rising above 1/60 sec or sinking below 1/8 sec.

To shoot a *flaw frame* in NightShot mode, you will need to *completely* cover the IR emitters before making the exposure with the lens capped. (Flaw frame noise reduction is not required for the F717.)

HOW DO I EDIT MY IMAGES IN THE CAMERA?



Once you are in Playback mode (not Review mode—that brings up the last shot only) you have options for re-sizing, cropping, duplicating and editing your images in the camera. Your options are many, and you could get quite lost in all the possibilities. Just remember that in the field—meaning away from your computer and AC power supply—the clock is ticking on the InfoLITHIUM™ battery. Editing takes time and time eats power. Still, when power is not a prime consideration, here's how you can make the camera into a versatile editing platform.

The Playback mode menu includes *Delete, Protect, Print, Slide, Copy, Resize, Rotate* and *Divide* options. Not all of them apply to all image types. Still images can't be "Divided," for instance, since that is a function for cutting up moving images only. For movie editing, see the next topic.

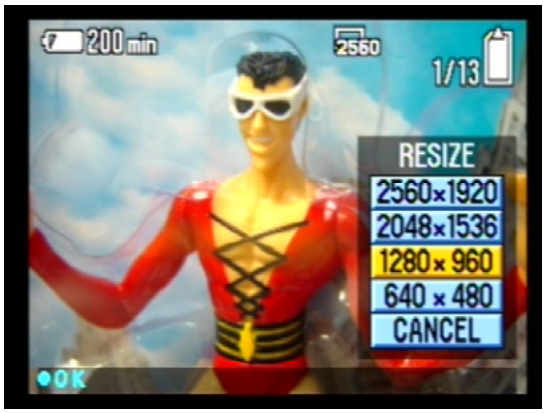
Above the LCD monitor the center button toggles between full image, 9-thumbnail and 3-thumbnail data screens. This button will jump you out of an enlarged view, too, right into the 9-thumbnail view.

ⓘ The 9-thumbnail view is the key to all multiple-marking editing actions for deleting, protecting, print-marking and copying many images in a batch.

ⓘ To delete a single image when 9 are showing, the safest way is to highlight the image with the gold frame, and bring it up to full size with a press to the center of the Control Button. Then press the Menu button. The menu bar will appear with the operation you used most recently. You may have to scroll over to the extreme left with the Control Button. Highlight *Delete* and you have a small menu with *OK* and *Cancel* as options. Select *OK*, and the deed is done. The Memory Stick is accessed briefly, and the picture in question is out of the question. It's gone.

This same sequence of actions can be used with *Protect* and *Print* marking except that those are accomplished instantly requiring no *OK* confirmation step when applied to full size shots. Similarly, *Resize* and *Rotate* menu items lead to sub-menus that expand your choices.

Resizing an image makes a copy of the shot at the size you select. You can make a shot larger or smaller this way, or by choosing the same size, merely make a duplicate of it. The new image made this way always appears at the end of the current stream of images. The compression setting for the new image is the one chosen currently in the Camera mode menu system.



ⓘ With the camera mode compression setting set to *Fine*, the resized and/or duplicated image will take up just over twice the memory space as it would with the compression setting on *Standard*.

ⓘ If you duplicate an image over and over—even at the *Standard* (lowest file size) compression setting, the shot won't grow appreciably smaller or show artifacts of greater compression with each successive generation. It will change, however, in subtle ways, showing that it was indeed

re-compressed with each new duplicate, but no practical loss of image quality is observable even after ten generations.

To *Delete*, *Protect* or *Print* several images all at once, you must first engage the 9-thumbnail view. The Control Button disk acts as a joystick to move through the images. If you opt to delete or protect images, you can do this to all of them or mark a selected batch for deletion or protection at the same time.

Print marking can't be turned on for all images at once, but it can be switched off for all marked frames at the same stroke. You will need to mark every image individually.

When selecting individual images, the Control Button steers you to the shot in question and a straight push into the body of the camera either adds or subtracts the *Delete* icon (a small trash can), the *Protect* icon (a small key) or a *Print* icon (a small image of a printer with a check mark) to the frame. When viewing a full frame, all the added icons appear on it giving you a running inventory of your selections.

If you view an image at a new magnification and framing—both accomplished with the Control Button and zoom controls—you can elect to save this new size as a cropped image. It works similarly to the *Resize* option above, and the new file can be any size you wish. Make your new framing and zoom positions, press the menu button and *Trimming* becomes the option that achieves the new, cropped shot. Saving the image to a smaller size results in a more pixel-perfect result, and saving to a larger size produces a softer-looking image when viewed on your computer at 100% scale.

ⓘ Try to save cropped (trimmed) images at the same size or *smaller* to avoid using up memory storage space.

In Playback mode you can also *Rotate* the images. This helps when you wish to review a string of vertical shots in the same orientation as horizontal ones. The data on the card is not physically rotated, but it plays on the LCD as if it were. A small tag of data is added to the file and some editing programs will read this and orient their thumbnail views correctly, too.

For a real test of the system, you can shoot a vertical image, *Rotate* it, *Resize* it and end up with a new file that has carved a horizontal chunk out of an originally vertical shot and saved it at a new compression and size. All inside the camera.

ⓘ *Delete All* images is the *fastest* way of freeing up the Memory Stick. The SetUp mode lets you *Format* the Stick, but when that is performed, it takes longer to free up the memory. By a lot.

The *Copy* function allows you to mark images for copying to a different Memory Stick in the 707 only. Once you mark a bunch of images for copying (the way you mark them for any other opperation), graphics on the viewing screen guide you through swapping Memory Sticks and recording the images there.

ⓘ Now with a little imagination, you could swap images in a new sequence and make a very tightly organized slide show. Images with sound copy with their sound intact. Something to do on a rainy day.

HOW DO I SHOOT MOVIES?

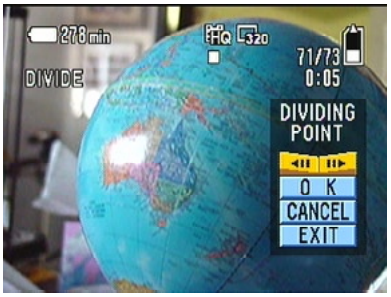
Digital cameras are a new thing under the sun. Not only do they shoot still pictures, but also many of them, the DSC-F707/717 included, can shoot motion scenes with sound for playback on computers and the Internet. Movies, however, eat more memory than typical stills. Three primary qualities and sizes for capturing movies are available. Both of the largest options make images that are QVGA or Quarter VGA size. This makes them 320 x 240 pixels in size.

The top quality mode, 320 HQ (called 320 HQX in the 717), uses up about four times the memory space of the 320 x 240 mode, and the smallest image from the 160 x 112 mode uses about one quarter of the 320 x 240 mode's memory, per running second. Frame rate and image size are the key differences between movie sizes.

Image size 707	Running length limitation 707	Image size 717	Running length limitation 717	Motion rate	Quality	Edit precision
320 HQ	15 sec max (5.2 MB buffer)	320 HQX	Card Capacity c. 6 min = 128 MB	16 fps	Modest	0.33 sec (6 frames)
320 x 240	Card Capacity. 1 MB = 11.5 sec	320 x 240	Card Capacity. 23 min = 128 MB	8 fps	Low	0.33 sec (3 frames)
160 x 112	Card Capacity. 1 MB = 46 sec	160 x 112	Card Capacity. 1.5 hours = 128 MB	8fps	Very low	0.75 sec (6 frames)

ⓘ One should keep in mind that the image quality is low, the audio quality is modest and scenes captured this way do not playback end to end the way they do in a real video camera. It's a convenience, not a main function of the camera.

Okay, I take that back. You can play scenes back in sequence—and even edit them to length, crudely—in the Playback mode using the *Slide* function, which creates a slide show out of your files, and the *Divide* function, which cuts movies into smaller chunks. In order to do all this in the camera, it would be wise to download and remove other files—at least for the first few times you play with the idea—because the process can get a tad complex.



To cut a movie into pieces, you enter the *Divide* edit mode. The principle is this: You are about to play the scene, stopping it at the division point, which will allow you to cut it into two segments. Each will now become a self-standing movie file, and each file may be retained or *deleted* separately. Editing movies is knowing what to delete.

Press *Divide* and select *OK*. The scene plays through from beginning to end. At the end of the shot—or at any time you pause the shot using the center of the Control Button—a menu appears listing instructions that outline your options. It says *Dividing Point* and gives you a forward and backward toggle, *OK, Cancel* and *Exit*.

A scene is moved to a Dividing Point (showing 0:03 at left). It is divided at 0:02 (middle) The new scene (right) now starts at 0:00 and the trimmed head of the scene becomes a separate movie.

Exit bails out completely. *Cancel* pauses and restarts playback, *OK* makes the current frame the dividing point and the toggles move you forward and backward through the scene in 1/3 sec increments. Yes, this means that you can

edit your scene with a resolution of one third of a second. Hardly frame accurate, it still is better than nothing.

If you select *OK*, you get one more chance to bail out because the *OK*, *Cancel* and *Exit* items remain. You must click *OK* once again to actually cut your scene into two pieces. *Cancel* returns you to the previous menus, and *Exit* takes you back to the menu that selected the *Divide* option. I told you it was a tad complex. After you do it a few times, the logic of it all begins to make more sense.

Other movie modes 320 quality, top, and 160 quality, middle, both deliver poorer quality images than HQ and HQX files. Clip Motion Mobile, bottom, lets you shoot up to ten tiny, high quality stills in an animated loop.

To "rewind" the scene you have two options. During motion playback, you can click on the side switches of the Control Button to move at double speed through the scene forwards or backwards and press the center of the Control Button to rejoin normal forward play. Or you can highlight the forward/backward toggle and either click backwards, or hold it down to stream backwards in jumps of one third of a second. Once rewound, the *Cancel* option both starts and pauses full-motion playback.

ⓘ The 160 mode has an editing resolution of about 3/4 sec, not as precise as the two larger image sizes. In strict terms, this would be called editing at its loosest.

After you cut the movie into two pieces, you will probably want to delete one of them, leaving the good part as a file on the Memory Stick. If you have made your scenes in 160 x 112 or 320 x 240 modes, the *Slide* show mode will play them back with only brief pauses from shot to shot.

ⓘ Even though the movie files may show up on your computer as being 25 frames per second, they are not. If you re-compress them with a utility such as Apple's QuickTime Pro ($30—highly recommended for Windows and Macintosh) you can reduce the frame rate to 16 or 8 fps and get just as good motion as there was in the original.

Two other useful "movie" modes exist in the F707/717. The simplest one, called *Clip Motion Mobile*, lets you take two tiny 120 x 108 pixel frames that become an animated GIF file (it only consumes about 16K while containing 256 colors). The other, called *Clip Motion Normal*, takes up to 10 miniature still frames that are 160 x 120 pixels big and turns them into an animated GIF file that takes up only 112 K of storage.

Both of these modes play back at two frames per second and are useful for Internet pages because of their small size. You get to gather the frames at your leisure, but you must shoot them in the order you wish them to appear. The images can be brought into Photoshop's companion program, ImageReady (the two programs come into your computer as a unit), where each frame of the sequence can be manipulated in many ways. Time, position, type overlays, sequence, color, contrast and special effects can be manipulated on each frame.

ⓘ I don't know anybody who bought the 707 for the Clip Motion features. Do you?

ⓘ Since they are made from tiny still frames, you have some of the shooting options available to you as you take the frames, and you can adjust flash intensity, special effects and sharpness frame by frame.

ⓘ When reviewing Clip Motion files, they are always in motion and cannot be paused. If you wish to inspect them one frame at a time, you will need to do that on your computer with a GIF viewing utility. Again, *QuickTime Pro* is recommended and Photoshop's companion program *ImageReady* gives you real editing power.

ⓘ Oddly, these files have unique prefixes and can only be found on the Memory Stick in a folder labeled 100MSDCF. Happy hunting.

HOW DO I SHOOT PANORAMICS?

Panoramics and full circular Virtual Reality scenes must be made from more than one exposure. The process of combining images into larger vistas is generally called stitching. A number of programs let you stitch pictures together. One of the most flexible is free in the public domain, Panorama Tools by Helmut Dersch. A version of it is included on this CD.

An easy one to start. This full tele panoramic started as two identical exposures captured with full Manual exposure mode.

Photoshop allows you to manipulate images in ways that permit stitching, as do PhotoVista from MGI, VR PanoWorx from VRToolbox, Pixmaker from Pixaround, and QuickStitch from Enroute. Some of these are even bundled with various printers.

For interactive Virtual Reality images, you will need a viewing utility to interpret and playback the stitched image. Quicktime VR, PanoMagic from VRTools, and several other programs for Macintosh and Windows machines can be found on the Web. Check the www.itssony.com web site and Sony Zone pages for current details.

Shooting for VR pictures takes some understanding. It also takes some money to do it flawlessly. The basic principle is this: Shoot a series of overlapping images. For the best work, the angle of change from one picture to the next will be identical. Special camera mounts are available that allow adjustment of the lens's null point—the point at which panning produces no lateral shift or parallax from shot to shot—and these can be quite expensive. Check out the Manfrotto 302 or 302Plus VR panheads. They are miniature optical benches with adjustments for any small camera, but the full system can cost $400.

Modest panoramic images is what most people want to shoot, so they can gather superwide vistas that no single lens could achieve. Here, three or more images can be stitched together creating a single shot. With Photoshop and some guidance (plus the experience of doing it a number of times), the results can be indistinguishable from single-lens images.

The amount of needed overlap rises as the angle of view goes wider. At full wide angle, you should overlap shots at least 50%. Telephoto shots can have as little as 10% overlap if you prepare the shot carefully, but the 50% rule will get you more success than trying to economize in the overlap area. Experience demonstrates that with camera zoom at wide, 38mm equivalent, and a 50% overlap between segments, almost all images can be gathered with enough grace to steer around problems. Problems usually show up as visible elements in the overlap area that don't appear in the matching area of an adjacent segment. People, animals and moving vehicles are the greatest culprits.

Interesting panoramic images *can* be stitched together from hand-held shots. A large picture made out of un-matched exposures or color balances would look really bad. Use a factory preset white balance (Sunny or Incandescent) or perform a Manual white balance before you shoot, and don't change

DLS shows more prominently after adding contrast to flat subjects. The iDLSA action was run on the bottom image prior to raising the contrast. Both were raised the same amount.

it until you are finished. If you use Manual exposure mode, you will avoid all sorts of problems.

ⓘ If your camera exhibits the DLS syndrome—Dark Left Side, meaning the left side of the image showing as darker than the right side—you will have to run one of the iNovaFX Photoshop Actions to level out the image density. Two Actions for this purpose are included in the iDLS actions folder included on this CD. They're created in several different forms, and you will need to experiment to see which one is best for your particular camera.

ⓘ To stitch images together, they must be free of barrel distortion. Your new iBC filters from the CD will help. Eliminating barrel or pincushion distortion from all shots should be your first step.

SEW WHAT

When you make your first panoramic, set some boundaries for yourself. Limit the number of images you're combining to three, use a tripod and shoot straight out from the axis of camera rotation. By doing so, you will be avoiding a whole bunch of variables that can complicate a panoramic shot. You will also be setting yourself up for the iPanoProcess iNovaFX Action that is found in the iPano folder of Phototoshop Actions.

ⓘ The technique taught here assumes you *can* remove barrel distortion from the images before stitching them together. If you don't have the tools to do this, shoot the segments at about 1/4 of the zoom range above full wide angle. If you do have means to remove barrel distortion, shoot at full wide angle. Make SURE that the camera is scrupulously level and that the tripod column is exactly vertical. Most of them have built-in levels, but it wouldn't hurt to get a small, reliable carpenter's level for checking yourself. The more variables you remove from your first effort, the easier and less frustrating it will be overall.

The angle of coverage is greater for the side Segments. With a 50% overlap, you get 260% coverage overall. Compare to actual shots, next page.

• Pan the camera to center your subject. That's right, the middle of the image will likely be the first exposure (unless, for some reason, it makes a lousy exposure target). Take a test exposure, and study it on the LCD screen to see if it is acceptable. Remember that a monitor screen that is set to extra bright (*Set Up > Setup2 > LCD & EVF Brightness, Backlight* [options]) can fool you about image quality. It may look more appealing than the actual image does later on your computer screen.

ⓘ Pick a subject that is more than 15 feet away from the camera. Panoramics that include close objects should be shot pivoting the lens around its "null point" and that changes with each zoom increment. The 707/717's tripod socket is in almost the perfect place for VR panning right out of the box, and with a tripod that pivots around the central connecting screw, you may be able to get away with it more often than not. Test the idea with your tripod before collecting treasured panoramic segments, however. For huge vistas in which everything is 100 ft. (30 meters) or farther from you, you will be safe from parallax errors with almost every tripod on the planet.

• Before panning the camera to the next segment, it is VERY important to note the details in the exact center of the shot. Momentarily put the camera into Spot Meter mode. See that little cross in the dead center of the shot? That's going to define the detail you are going to keep track of.

• Practice panning the camera while that center detail exactly touches the left and right sides of the monitor. Try to imagine the exact center pixel that started under the Spot Meter's cross and pan so that exact pixel just touches the edge, left and right. Only a visual test like this will show you the extremes of the whole picture.

• Adjust the center framing if need be. Repeat the left/right practice until you are confident of the series of framings it will take to make the final shots.

ⓘ Notice that the only shot you have taken so far is a test image for exposure.

• Frame the center image and shoot it, following with the left and right images in fairly quick succession. If the scene is full of people, this rapid acquisition of shots will help keep folks in their own frames. Alternatively, you can shoot the left, center, and right shots in clockwise or counterclockwise order. Clockwise L/C/R segments look more intuitive in a thumbnail viewing program.

With the constraint of a 50% overlap, you can easily slide the centermost detail over to the extreme edges of the side segments as you pan and shoot. Notice that these original shots are slightly rotated and barrel distorted. That will need to be fixed.

ⓘ If a lot of "traffic" seems to populate the overlap areas, shoot the stream in your chosen order several times in hopes that one of them will stitch more easily.

• Now take the camera off the tripod, and make the same string of shots hand-held. The practice you have just acquired by doing the shot on the tripod will immediately help you to do the shot with nothing more than your hands.

ⓘ Later, when you study the two trios of images on your computer, you will see how little drift vertically there was in the tripod series, and how much there was when you shot the series hand-held. This is a factor that will be with you always when shooting panoramics by hand. With practice and awareness, it can be minimized, but it will not disappear. A little extra-wide framing will help.

Many VR panoramic stitching programs create a curvilinear perspective—as if the image were created on the inside of a cylinder or sphere. That looks warped in a print and makes straight lines display as curves. For architectural images, you want straight lines. Rectilinear perspective is needed. Now we will stitch these three segments and keep the perspective as straight lines.

Level segments stitch more intuitively. If your subject is face-on and flat like this one, the iGrid&Rotate action followed by the iPanoiBC-actions will help. Note the rotation angle. It must be the same on all three segments. This rotation technique does NOT interfere with the subsequent barrel correction.

If you are using Photoshop to transform the pictures for stitching, the following steps will guide you through the process. Here's where Photoshop becomes a sewing machine.

• Open all three sections at the same time in Photoshop.

ⓘ If you made your shots with the lens at full wide angle, you will need to run the iBC707W de-barreling iNovaFX Photoshop Action to bring each frame into perfect linear alignment. Remember that every zoom lens in the world creates some degree of barrel or pincushion distortion, and this will really drive you crazy unless you can correct it before attempting to overlap and align images. Special fast wide and wide+converter iPanoiBC Actions are in the iPano Actions folder for convenience.

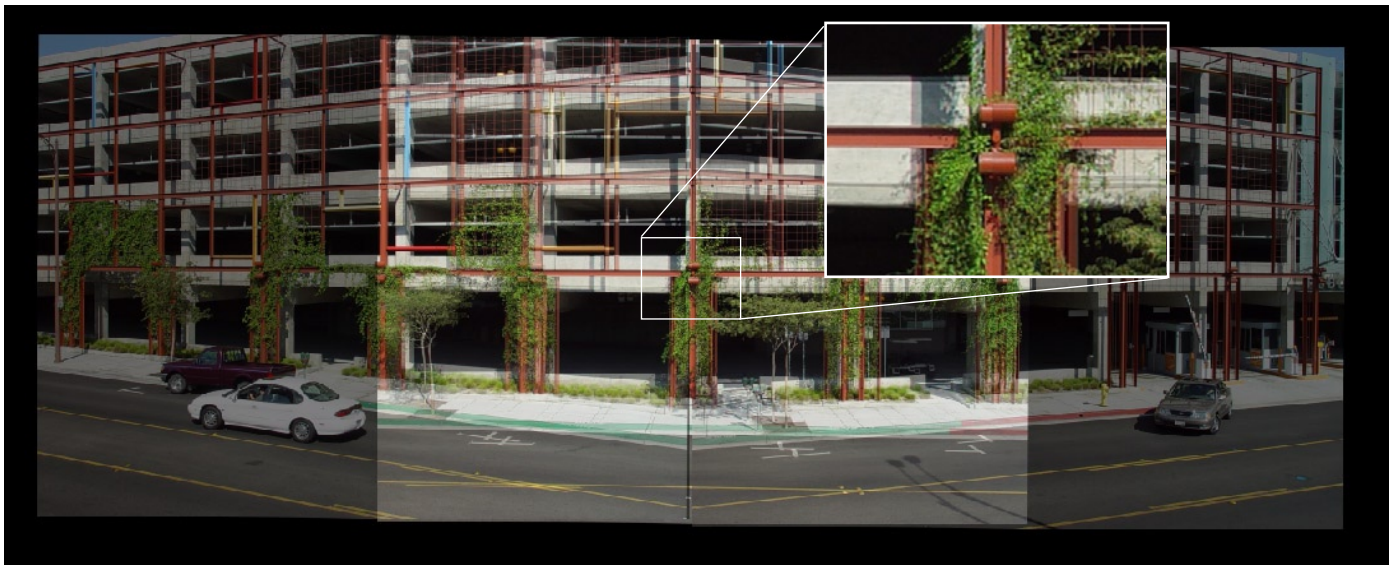
ⓘ Take care of any DLS phenomena with one of the iDLS707 iNovaFX Photoshop Actions to eliminate the effect before stitching.

• Display segments at 25% size or smaller for easy reference. Arrange them side by side on the screen so you get a rough idea of how they relate to each other.

ⓘ If you have used the iPanoProcess Action to orchestrate overlapping and pre-distorting the segments, note that it only works with full size, full-wide shots. Open them one at a time in L/C/R order.

• Make a new canvas with a black background. It should be about 8000 x 3500 pixels large. You are going to need some room to work. *Copy* and *Paste* the Center Segment onto this.

• *Copy* the Left Segment. *Paste* it onto the larger center shot. It will land as a separate layer that can easily be slid into place. Slide it so its center is on the left. *Paste* the Right Segment and slide it half way to the right.



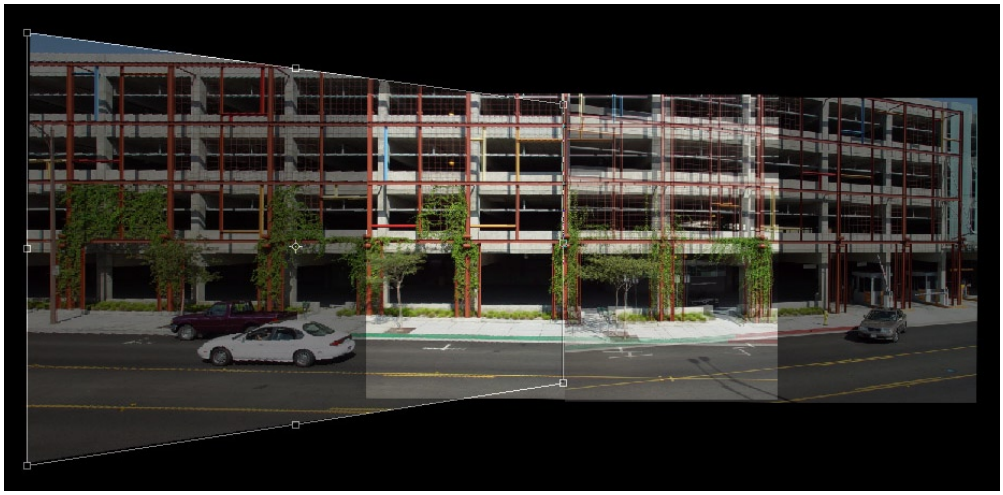
Once you open all three segments, change the outer ones to 50% Opacity and park that center target detail— the one that guided your shoot—on the center image version of the same detail. Notice the "detail echo" effect when it is right (inset).

• Change the *Opacity* of the outer Segments to 50%. This will let you see how the details are lining up. It becomes an exercise in seeing two layers at once for a while. iPanoProcess does all this automatically, stopping to let you make adjustments then picking up with the next task.

• Carefully position the Left Segment so that the vertical center of its right edge exactly overlays the same detail on the center image. You will probably have to shift the whole left panel up or down to achieve this, but it is the foundation to all that follows. Do the same with the Right Segment.

Using the Transform tool in the next steps, a habit must be learned. You will adjust the left image first as *Perspective*, then as *Scale*. Learn the key shortcuts for your computer that facilitate this.

Going back and forth between these two modes is critical, for as the perspective of the outer images is adjusted, horizontal scale within the image changes. You will need to correct both aspects of the image to see how much more correction will be needed for the next step as you get closer to perfect. Initially you can work at 33% or 50% of full image size, but as you get closer to perfect, you will enlarge the image to 66% or 100%.



When working with a full-wide, 50% overlap set of segments, they always acquire this shape.

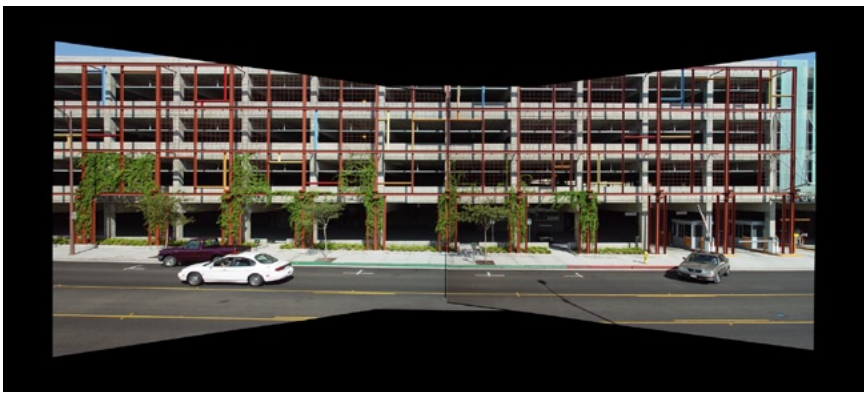
• Using *Perspective Transform*, move the upper right adjustment box of the left image downward until the size of the detail at the right edge matches to the center panel. Be exact. If it seems to be the right size, but not centered, lift or drop the whole panel with the keyboard arrow keys until it fits.

• Now grab the upper left *Perspective Transform* box, and move it upward until perspective features look right. The picture above shows how much to expect. Notice that the perspective lines of the original subject have now extended straight into the very distorted left panel. When perspective lines aren't present, make any image details match the size and spacing of the corresponding ones in the center. Notice how details are offset only left or right of their counterparts.

• Using *Scale Transform*, pull the left side of the left image out about as far as you see in the image, above. Squeezed details in the overlap area become much closer to the correct horizontal dimension.

• Using the arrow keys, you can re-center the images over each other by small increments.

• Repeat these transformations, *Perspective* and *Scale*, until the images seem to be well aligned. Pay particular attention to perspective clues in the overlap area, and let them guide your next tweak. With practice, you can do it in one pair of moves. So feel free to practice. The linearity and size of the overlap area are completely at the mercy of these two transformations.



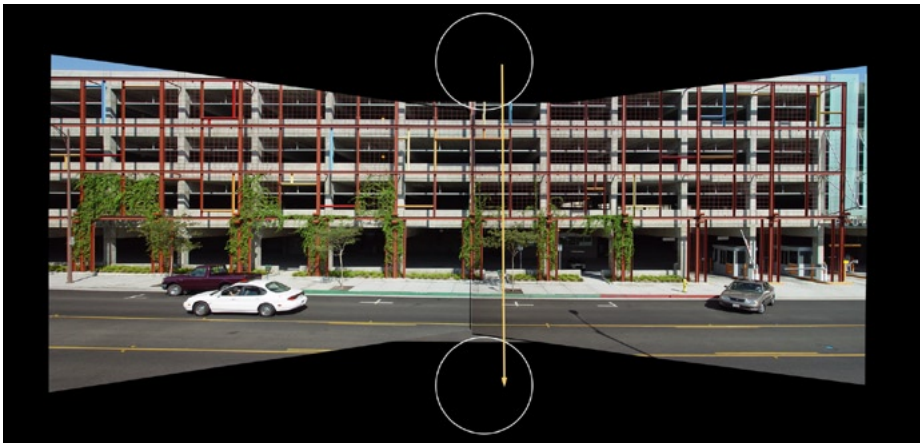
Once everything is lined up, turn the outer segments to 100% Opacity and get ready to blend the images together

ⓘ If you need to make fine adjustments to one corner, you can only do so in *Free Transform* mode.

ⓘ If one side seems to be the right size but is above or below where it should be, lift that side with the center edge *Transform box*. You may have to move both sides to maintain perspective. The stretched image, right, shows how close you can get after you've done this a few times.

After the left side is *Transform*ed, the right side will go faster. Your experience is showing already.

• When you feel that you have aligned it about as closely as you can, select the *Eraser* tool, and give it a big soft brush of about 800 pixels. iPanoProcess facilitates this, too.



With good alignment you can use a generous blend stroke. Smaller soft eraser circles can work around detail.

• Plan a route down through the part of the overlap area that seems to be the best aligned. The overlap area may show some flaws, but you are about to stitch around them. Use a smaller brush if the flaws are outstanding or if you have a lot of transient traffic in the overlap area.

•Once you are satisfied that a blendable area goes from top to bottom, make the Right Segment *100% Opaque*, and paint the eraser effect down through its left side in a continuous stroke. You may have to try this several times before you get it right, so be prepared for fast undos. Notice that the brush needs to be offset to the left as you paint the eraser effect. The soft edge may leave some parts unerased, and you will have to clean that up later. Turn off the Center Segment temporarily to see if there are any unerased details.

After both sides are done, you can collapse the layers and crop the image into a rectangle. Save it under a new name.

The example demonstrates several things. Notice that the linear details look proportionally correct, but the objects at the edges may seem stretched a bit compared to the way they originally looked. This would be the *exact same effect* you'd get from a superwide lens. Objects parallel to the image plane read proportionally correct, but three-dimensional images near the edges are progressively distorted. It's not an artifact of the process, it's an artifact of rectilinear perspective in extreme wide-angle shots.

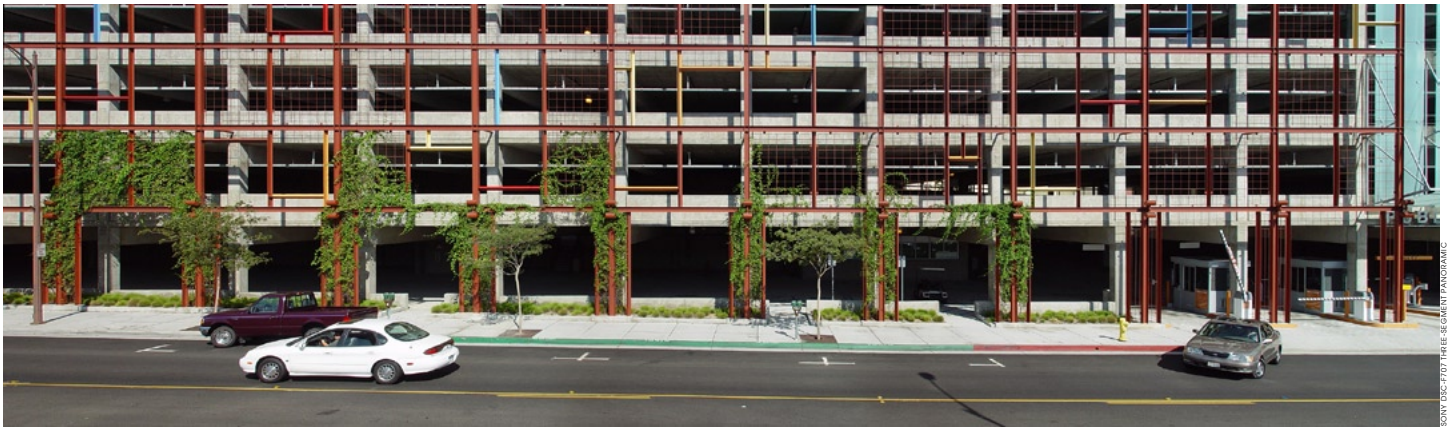
Turn off the Center Segment to check that there are no image pieces left hanging.

Panoramic images made this way spread the image detail at the right and left sides of the outer segments when they are expanded to appropriate perspective and scale. That causes a certain amount of lost resolution. It's unavoidable, but it does yield an extremely wide shot. This resulting shot is equivalent—horizontally, at least—to a 19mm lens on a 35mm camera. Super wide-angle indeed.

In hand-held panoramics, extra corrections will be needed due to slight rotations—twists that occurred during shooting. Often these can be corrected with small *Skew Transform* adjustments. Sometimes you just have to slightly rotate the whole panel before stitching can begin. A special iNovaFX Action utility, iPanoGrid&Rotate, facilitates this, too. It's included in the iPano707 folder.

ⓘ Not all panoramic images can be shot with the camera pointing straight out from its axis of rotation. But be warned. Images that are shot at an angle to the axis of rotation are harder to correct. Do ten easy ones like the example here before trying these more difficult ones.

ⓘ The tripod alone worked well for the example shot, but with subjects nearer to the camera, a pan head that rotates the camera around the lens' nodal point (optical center) is better. Many architectural



The final superwide image. Compare this to the center, wide-zoom coverage on page 5-28. It is nearly three times the span.

images will be shot from street level at a pronounced upward angle. The *Skew Transform* effect will help here immensely by pre-distorting side images into a rough correspondence before applying *Perspective* and *Scale Transforms*.

ⓘ Often with complex images, you will have made so many tweaks that the image feels like it will never come together. It happens to everybody. This is a good reason to go into Photoshop's *History* file and start over at an earlier stage. It is amazing how fast a correction can be made by starting over and how much time can be lost by trying to adjust an image panel after several mistakes creep into the process.

Ultra wide angle images can be made with this technique using the Sony VCLMHG07A wide converter.

ⓘ If memory use becomes an issue—and it can easily bite you with three or more full size pictures in the same file—you may have to minimize the number of steps it takes to achieve a *Perspective* and *Scale Transform*. Jumping backwards in the *History* file lets you redo a series of tweaks as a single, more accurate first adjustment. This practice will save scratch disk space for other operations.

Photoshop Elements has a simple feature that lets you put all the segments of an image into a file, pull all those shots into PSE and hit the *Stitch Panoramic* button. Like magic, the program does all the hard work and even gives you control over shots that were not made at the same exact exposure. It does *not* always work the way you might expect, and it is not as precise as doing it by hand, as outlined here, but it gives you a preview faster than doing it using the instructions in this topic.

The Ultra wide result is almost four times wider than the Center Segment alone.
You will need a huge work space 10,000 x 6,000 pixels big.

HOW DO I SHOOT INFRARED IMAGES IN DAYLIGHT?

Infrared (IR) images are very cool. They give you a way to experience the world that isn't directly visible with your eye. Infrared photons are longer, weaker photons and they react to vegetation, atmospheric dust, dyes and skin in novel ways that make for some pretty interesting images. The infrared spectrum starts below visible red and extends down towards radiant heat. Usually, IR light is a nuisance, and an internal filter cuts it out of the light coming into the lens, but for some shots it defines a new way to see. And with a digital camera that reacts to IR light, you can see the infrared world directly as you shoot.

Second sight. The full color scene on top hides the infrared view under all that color. With the right IR and ND filters, NightShot mode reveals a different world.

When the 707/717 camera is set to NightShot, it becomes an infrared-capable imaging system because an internal infrared blocking filter is removed from the optical path. As you click to NightShot mode, you can hear the filter inside being moved. The camera still responds to color, but its sensors are now far more receptive to long wave infrared light. If you were to put an infrared filter on the lens, you would block the visible light and cause the camera to become sensitive only to infrared.

But other things get in the way. In NightShot mode, two infrared LED emitters switch on. That's great for night shots in very dark, or totally dark situations, but it also reflects strongly off the back of *any* filter placed on the lens.

Another thing immediately becomes evident. The exposure is locked at wide-open iris and the shutter speed is limited from 1/60th to 1/8th sec. You can change the ISO of the camera and you can still adjust the EV+/- setting, but in daylight, the scene will be completely washed out. A triple strategy is needed to let the camera see daylight scenes in infrared.

The choice of IR filter is the first strategy. The 87 series are IR-pass filters that block visible light. The 87 lets in the most IR and the 87A, 87B and 87C filters let in less and less of the shorter wavelengths of visible and near-infrared light. All of the 87 filters look black to your eye, but the 87C is your best bet for full daylight imaging since it cuts out so much of the brighter near-infrared light. Still, the daylight scene will be too bright. An ND8 filter cuts the light down by three stops to 1/8th of its original brightness. Tiffen calls these "0.9" neutral density filters, but they perform the same effect. The web source, 2filter.com, sells an appropriate IR filter pack for these cameras.

ⓘ Some places offer filters with a different nomenclature. An "093" is equivalent to an 87C and appears quite black to the eye. IR filters are usually found in B&W film filter collections in camera stores. They likely won't know what you want if you say it's for a digital camera.

Stacking the ND8 and 87C filters does the job for daylight. But it doesn't solve the camera's own IR emitter glare. For that, you will have to cover the emitters. You could tape them over, but there's a better way. Mount light absorbing pads on the back of the rear-most filter. Hardware stores sell round

felt pads for use under objects that might mar table surfaces. They are inexpensive and generally come as self-sticking circles with several sizes on a card. Since filters screw into the lens at the same orientation each time, you can position the pads on the filter right where they will cover the emitters. If necessary, double up the thickness of the pads by stacking them.

Infrared shots can be quite dramatic, but the files from the camera will look greenish. A little extra computer dark rooming will bring them into a more pleasing look.

ⓘ One way of turning any of the IR-mode shots into neutral B&W is to grab the Green Channel in Photoshop and paste it into the Red and Blue channels. This works with the "Sepia" special effect mode, too, making it a good way to achieve neutral B&W images.

ⓘ Search for an ND400 filter. These cut out so much visible light (9 stops!) that the Nightshot mode's IR sensitivity produces good infrared images without an added IR-blocking filter. To your eye, this glass looks completely black with only a ghost of the real world visible through it.

HOW DO I SHOOT FOR SPECIAL EFFECTS?

With so many iNovaFX Photoshop Actions to deliver special effects, it may seem dauntingly difficult to decide how to shoot for a specific effect. The camera's own special effect list is small, giving you Posterization (turning colors into solid zones of flat color), Negative Art (inverting the tones and colors of the image), and Sepia (gathering the image as a very warm-toned monochrome image). Pretty limp.

There is a lot more to be done to images than this, so the iNovaFX Photoshop Actions contain over three hundred (!) themes and variations of special effects to help you manipulate images.

When shooting for more complex special effects, you will need to first understand the effect at a visceral level. Try several images you've already gathered using the iNovaFX Action (or any new effect) just to see how it behaves and how effective it is. Pun intended. Not every image works well with every type of effect. An oil-painting-like special effect (such as the iCanvasPainting series of iNovaFX Photoshop Actions) usually works better on a close-up portrait than on an image of small detailed objects, for instance. But until you try, you may never know. I often find images that work with effects I would have dismissed as being inappropriate.

Far from the original image, a special effect may bring out a new way of appreciating the subject. iPSSketchiStampArt (top), iBloomArt2 (bottom).

Once you understand what the result looks like for a given special effect, you can plan your image to fit the subject type, tonal range, contrast ratio, lighting and composition format that work best for it. Then shoot.

ⓘ Chapter 8 shows a number of special effects results using various iNovaFX Photoshop Actions on the *same* image. Sometimes an image will lend itself to manipulation by many different techniques. Often the best effect is not the pre-packaged version, but one you invent from scratch.

ⓘ Study the Photoshop manual to learn how to record your own actions. It's not as hard as it might seem at first, and a recorded action will let you apply its many steps to other images.

ⓘ The booklet in the CD case is also a chapter in this eBook. See *Shooting for Effect*.

It takes two to tangle. Two images shot from slighly different lateral positions give your brain the perception of volume.
Here the left eye image is on the right side and mild convergence of your eyes is needed to pull the shot into 3D. Baths of Caracalla, Rome.

HOW DO I SHOOT IN 3D?

The essence of 3D is that our brain sorts out the view we get from two eyes and reports it to our conscious awareness as an unambiguous *volume* of visual material. The phenomenon of 3D perception is all in our mind, but clever Mother Nature has found a way to simulate volumetric visual perception with just two eyes parked a few centimeters apart. This makes it fairly straightforward for us to capture a volumetric image in 3D with just two exposures, one for the left eye, and one for the right. Shooting an image pair might be simple, but how would you get these shots into your head?

To create a true-3D effect, you would need to shoot images at the same instant and from two places about 65mm apart horizontally. Then you would need to view the two images in a way that delivered only the left point of view to the left eye, etc. Well it's not easy to lash two DSC-F707/717 cameras this close and trigger them to the exact fraction of a second perfectly, but that all only applies to a TRUE 3D capture. If you put some constraints around the idea, you can shoot very realistic, revealing 3D images with nothing more than one extra shot. But only if you accept some limitations:

1. The subject can't move, wiggle, distort or change for about five seconds. If the dog wakes up after the first exposure, it will move, and there goes the shot.

2. You must be able to shift left or right from the position at which you take the initial shot. It really doesn't make much difference which goes first, but you might shoot in Left -> Right order to avoid confusing yourself later.

3. You must frame the scene exactly the same way—same exposure settings, focus settings, framing and composition—for both shots. Locking these attributes as you set the shot up is a Good Idea.

Well, that lets out fast, moderate and slow action shots. The subject must be stock still. Or you must be so far back from it that it doesn't appear to be moving from shot to shot. Things like clouds in the back of a scene don't make much difference, but waves in the foreground will ruin the effect. So will leaves fluttering on trees and plants, birds flying by, kids making faces and tourists milling around a monument. Don't let that stop you, we're not finished.

If you limit your shot to the parts of an environment that stay still, you can make 3D images. Architecture doesn't move, museum exhibits don't move, either. Still life subjects are fair game and so are aerial images. Excuse me? Did you mean shots from an airplane? Yep. Of course, there is no way you can be precise with many of these situations on a candid basis; the left eye/right eye distances will not

Aloft! Two shots made out of an airplane window can become a dramatically deep vista. Alps at dawn.

be controllable. That turns out to be something of a non-problem. As long as the two images are not "relatively" far apart, your brain sorts it out and gives you a volumetric view anyhow. It isn't technically correct but the only thing that is in jeopardy is the actual scale of the 3D effect. On large scale scenes, you can move a foot or several meters from one shot to the next and create a convincing 3D result. Your brain is more accommodating than you may think.

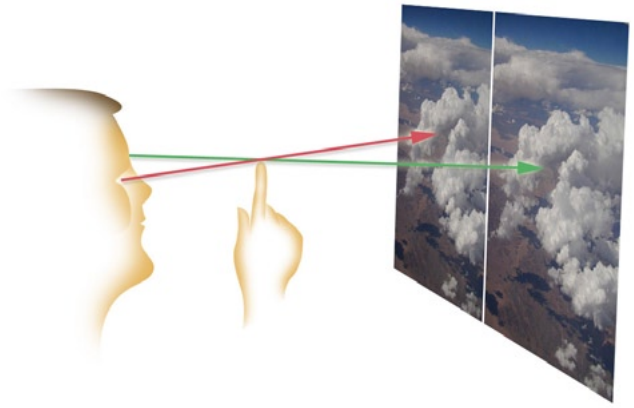
From an airplane, you simply aim the camera out the window and shoot a stream of images in the Burst 3 mode. Now when you press the shutter, the camera quickly gathers three shots in a row over about one second's time. The view screen blanks out for longer than a second, but the three images have now been taken about 400 and 800 feet apart (roughly 120 and 240 meters) at passenger liner jet speed. That's such a small fraction of your eye to ground distance that a modest 3D effect will be in the two most extreme shots. If the plane is inside nearby complex clouds, you may find that two closer together shots create the best effect.

ⓘ High altitude images are best gathered using Daylight white balance. Haze builds up with altitude and an iNovaFX Photoshop Action set called iAerialShotCorrection.atn will cut through the haze and give you images that make ground colors look right.

SEEING IN DIMENSION

Once you have a left and right eye view of things, how do you see it? Wouldn't it be cool if you could simply put two large images side by side and see them in dimension? It can be done, but I fear it is not for everybody. The method I outline here can't hurt your eyes or ruin your vision, but it will feel strange to your eyes at first.

First, a brief refresher in vision dynamics. We know that our eyes focus from near to far and that we can angle our eyes inward to view objects close to our face. It isn't a stretch to hold something up to our faces eight inches from our nose and inspect it for a long time in perfect comfort. What is not



immediately apparent to us is that by habit, we have linked the focus and convergence circuits of our eyes in a coordinated effort. If we transcend that *coordinated* state, we can view pairs of images in 3D with relative ease on computer screens, in eBooks and as prints. Here's the trick:

The most convenient way of seeing 3D from pairs of images is to lightly cross your eyes, superimposing the images on top of each other in your brain. It will help at first to hold a finger about seven to to ten inches in front of your nose, and focus on your fingertip while observing the image pair shown here on the computer screen. Bring your finger up over the images until you see what looks like three images in a row *behind* your finger. Then try to focus *past* your finger to the center image. In practice, many people learn to do it in less than a minute. Other people will have to try to see it several times before becoming successful and still others won't even need the finger technique.

Sunk into the page, top, and lifting out of the page, bottom. Notice how the position of the flower is centered equally on the top example. That makes it appear near the plane of the page. The background plane of plants is cropped more equally in the bottom version.

Now it's time to bring up the idea of the viewing plane. With a 3D image there will be the choice of where the depth of the image should be; in front of the page, behind the page, or somewhere in between with some elements seeming to protrude and others seeming to sink behind it. Any object that is exactly cropped the same in both shots will appear to be at the depth of the page itself. To the degree that an object is farther from one side of the picture in successive shots, it will appear to be in front of, or behind, the plane of the page. You can fix this in editing the image if you crop the two images with the exact framing and lateral placement. The easy way to do this is to layer one image over the other, and make the top layer 50% transparent with the Opacity Slider in the Layers window. Slide the top layer until it matches up with the unmoving bottom layer. Some details will match perfectly, others won't. The ones that you make match perfectly will be at the plane of your image after you crop the two layers at once.

After cropping the pair so both images occupy the same frame, make the top layer 100% opaque, and double the canvas size horizontally with the Canvas tool. Now slide one layer to the left, one to the right, and use the viewing technique to see if you got it correct. Flatten the image, and print it out, or store it for viewing on your computer.

HOW DO I SHOOT WIDER-ANGLE SHOTS?

The F707/717 has a wide zoom setting with a 48° field of view, side to side. That makes it equivalent to a 35mm camera with a 38mm lens attached. Just short of being the 35mm film camera "standard" wide angle view of 54° using a 35mm lens.

But many scenes call for an even wider angle of view, so Sony has created a very wide converter optic that mounts to the zoom lens and increases its coverage by 43%. The VCL-MHG07A is a very large diameter hunk of glass that effectively doubles the *area* of an image by increasing the linear coverage of the view by 43% in each direction.

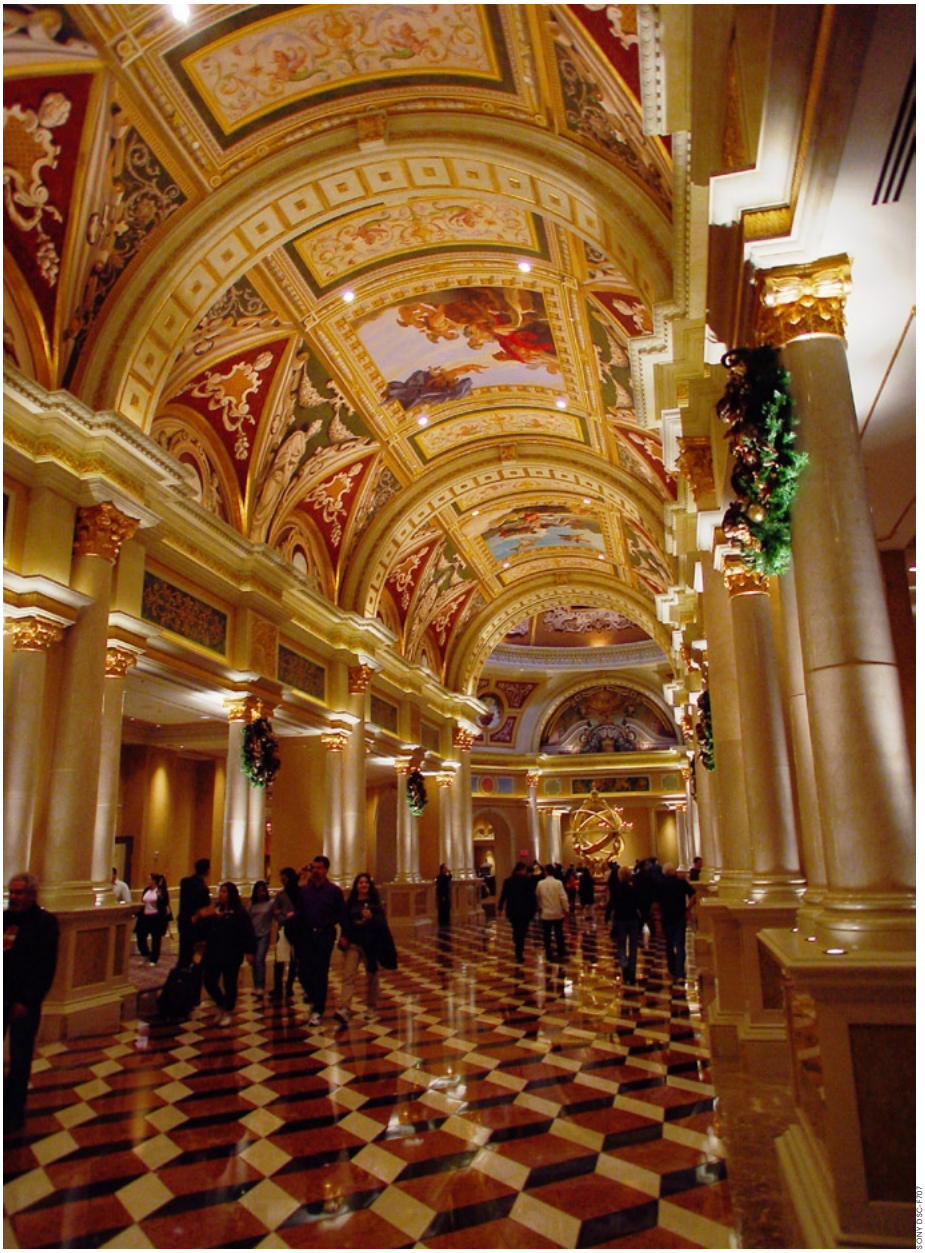
ⓘ The converter magnifies the wide-angle scene by 0.7X and many people incorrectly think of that as being a 30% wider coverage. Far from true. What the converter does is to cause the previous coverage to become 0.7 times as large in the frame as it was (the green outline shows what the shot would have been without the converter), thus gathering a much wider field of view. What people really want to know is how much more image does that produce? With all objects reduced to 0.7 times their original size in the frame, that frame extends 0.3/0.7^{ths} farther out, since the area that is now 0.7X used to be 100% of the image before the converter was in place. And 0.3/0.7 = .43 and that shows the ratio of increased coverage. To figure the increased *area*, 1.43 x 1.43 = 2.041, or slightly more than double. You can see this intuitively in the image at right.

To use the converter, step-down rings (supplied) attach it to the threads in front of the lens since its native thread size is only 52mm. You must either select *Set Up* > *Setup 1* > *Conversion Lens* > *On*, or turn on Macro Focus and manually zoom the lens to its widest .

The *Conversion Lens* menu item performs a cluster of settings. The zoom moves to its widest and locks. The iris clamps down to *f*/4.0 as a maximum aperture to help hold focus from center to edges. The holographic focus assist projector is locked out. The focus range of the image is optimized for the converter, i.e., it narrows its focus to a very close range, and the zoom is disabled. All that for the '07' converter. But it is worth it. The converter now gives the camera the equivalent of a 24.5 mm lens and it is quite good quality. From *f*/4.8 to *f*/8 it maintains critical sharpness from center to corners.

ⓘ You can set these options yourself and get a bit of extra performance from the lens if you are willing to accept some compromises. Instead of setting the camera to converter mode in the Set Up menu, simply lock Manual Focus at exactly 0.10 meters, or Macro auto focus, and shoot using Aperture Priority exposure mode. The zoom should be all the way wide, but if you wish, you can use a small portion of zoom at the wide end of its range for fine framing adjustments. The manual focus may have to be adjusted a bit if you zoom. In general, the corners of the image at *f*/2.0 will be soft, but from about *f*/4.5 and up they will be acceptably detailed.

ⓘ Carry the VCL-MHG07A in its supplied pouch with the adaptor ring attached. Find a rear 58mm "filter stack" cap to protect the rear element. They can be found in most large camera stores, often in a two-piece set of 58mm front and back caps.



Other converter lenses exist from a variety of sources, but I doubt you will be satisfied by their results. Olympus makes a TC-14 teleconverter large enough, but its low magnification is only equal to a 1828 x 1371 pixel crop.

ⓘ The VCLMHG07A is so large that placing filters over the lens is really out of the question. Any filter would vignette if it could be fitted, and the filter size would be nearly the size of a CD. This thing is big! Not only that, but mounting a filter behind the converter is even *more* destructive to the image. In order to function correctly, the converter must maintain its optical relationship to the camera lens. Anything mounted behind the lens would precipitate grave consequences to the image. If you want the darker blue skies a polarizing filter creates, you will just have to use the iNovaFX iPolarizeSky actions with shots made through this lens or go through a lot of financial pain to try to adapt giant filters to the front of the lens.

HOW DO I SHOOT CANDIDS?

There is no single way to shoot candids. Candid images are, by their very nature, unexpected, unposed, impromptu, non-rehearsed, surprise shots. Sometimes you can predict that a good candid situation will likely come up, but for many candid images, you have only a brief window of opportunity to capture them. In the greatest number of candid shots, the subject will be entirely involved in their own world of concerns, and you won't be a part of it. Preferably, they will ignore you or simply be completely unaware of you and your camera. Remember that people inside businesses, on private property and in special circumstances may be protected from being photographed by law.

With the camera up to your eye while using the Finder, you will look like a photographer zeroing in on your subject and nobody will go back to what they were doing if they see you aiming the camera this way. The exterior LCD screen provides a certain amount of cover for moments like this. The camera can be aimed from your lap, the top of a table, and even off to the side (for vertical shots) while your own face is not facing the intended subject.

When the subject ignores you, a candid image can be achieved—perhaps several. But when they spot you, don't simply give up unless the entire situation has gone away.

Things that may help:

- Shoot in the Burst 3 mode. Expressions and gestures change quickly.
- Look away from your intended subject as if they don't interest you.
- Shoot from waist level, lap level, table level or from a pose that doesn't suggest you are aiming the camera.
- Yawn. Look like a tourist.
- Smile, making an acknowledgement that you saw how they looked, but the moment is over. It may not be.
- Move the camera off them, but only until they lose interest in you.
- Take the picture anyhow. A glare, even if it is confrontational, can be interesting.
- Shoot from cover. If you hide your face or the camera, or both so your intended subject doesn't connect with them, they will move on, and a picture may happen.
- Recognize that many shots will get away, and be prepared to move on to the next idea. Shoot something else near them—as if that was the thing interesting you all along.
- Telephoto settings will give you extra invisibility.
- Wait for it. An attractive setting may just produce an attractive moment.
- Become a photojournalist. Keep shooting as if the subject is a story you are covering. You might connect with the person and achieve something. Roll your hands. Urge them to continue naturally and nod gesturing that this is your job to take pictures.
- If they object—back off. Apologize. It is sometimes better to apologize to a dozen people than to miss an amazingly engaging shot pulled from real life.

ⓘ Remember, you and you alone can determine if you are being too pushy as you shoot candids in public.

HOW DO I SHOOT BLACK AND WHITE IMAGES?

Many digital cameras include a monochrome B&W shooting mode, but the F707/717 has only its special effects modes that include *Posterize, Negative Art* and *Sepia* options. When you want to shoot for B&W images, the way to do it is to shoot in *Sepia*—so you can see the image in monochrome as you gather images—then edit your image so the Green channel alone is the printing source.

In Photoshop, this is fairly easy. Both Photoshop and Photoshop Elements allow you to manipulate the individual color channels so you can view the Green channel by itself, copy it to the Photoshop clipboard. Now you can either create a new file and paste the Green channel there for a single channel, 8-bit monochrome image, or you can paste the Green channel onto the Red and Blue layers of your original shot, thus turning the color image into a completely neutral monochrome result.

Both methods give you a B&W final shot. You may wish to follow up with a small amount of tweaking with the Photoshop Levels or Curves control. These will allow you play with the sort of darkroom manipulation photographers have pursued for years using poly contrast printing papers.

One other way to shoot for B&W images is to shoot in color and derive the B&W image in your computer. Special iNovaFX filters are included on this CD that derive several different types of monochrome film looks from your sepia and color images. The advantage to shooting color is that you can print the image either way. The disadvantage is that you can't see your image as a monochrome assembly of tonalities as you shoot.

ⓘ To create the effect of color filters over your B&W images, you will need to shoot in color using the iNovaFX Color Balance Color Filters or use actual color filters over the lens as you shoot in *Sepia*. The iNovaFX iBWColorGel filter for Photoshop allows you to manipulate the RGB channels of a color image to create the effect of strong glass color filtration on B&W film.

HOW DO I SHOOT FAST ACTION?

Action photography in general takes a lot of practice and experience to gather with a high degree of success. Professional photographers specialize in sports and action with good reason. It takes a specialist's eye and experience to anticipate, respond to, and accomplish good action photography. But there is nothing that says you can't get good at it, too. You will need to be aware of several principles, though.

High shutter speeds freeze fast moving subjects, but not all fast action images *need* to be frozen. Slow shutter speeds of 1/30 to 1/8 sec are useful for showing the blurred, streaked dynamics of move-

ment that action often brings. For things like football or baseball action, higher shutter speeds and longer zoom settings are your first choice. For things like auto racing, shooting while panning with your subject will allow longer exposure times to blur the background while keeping the subject relatively sharp.

Bursts of images made with motor drive cameras are the mainstay of sports photographers. The Burst 3 shooting mode in the 707/717 gives you a fast way to take three shots in a row in under a second. This mode uses a special high-speed image gathering feature of the imaging chip to collect three shots as fast as the electronics can hustle. The down-side is that the image goes blank on the viewing screen during the capture sequence. You won't know what you have until you review it.

Equipment response time is more desirable in action photography where unpredictable events can happen at any time. To optimize the camera shutter response timing, eliminate the exposure preparation systems that slow things down. Disable the Auto Focus system by using Manual Focus mode. That will speed things up a lot. Now set the camera to Manual exposure mode and shoot test shots so you know how the camera handles before the real action begins. Prepared this way, the camera is now responding as fast as it can, but don't forget to half-press in anticipation of the coming fast-moving event.

HOW DO I BRACKET EXPOSURES?

A bracketed exposure includes over and underexposed versions of the same shot. So it is really a cluster of exposures seeking one to be perfect. One of the exposure variations may be significantly better, for one reason or other.

Built into the DSC F707/717 is a shooting mode that gathers a bracket of images quickly with a single shutter press. It shoots a burst of three images in just under one second, and just like the *Burst 3* rapid-sequence mode, the viewfinder goes dark for that entire time. That's bad for moving subjects, but okay for tripod shots. The Set Up menu contains a preference item that specifies the separation between bracket exposures. I keep mine pegged to *Bracketed Step* > *±0.7* giving my bracket sequences a range of just over 1.5 stops, but you can set this for as little as *±0.3 EV* or as high as *±1.0 EV* per bracket frame.

Bracket for critical exposure. Here 3 images were captured -0.7EV, 0, +0.7EV.

ⓘ Of course, you can always perform a manual bracket using any of the shutter or aperture controls in full Manual exposure mode. You could also use the EV +/- system to shoot a string of images above and/or below the camera's indicated light reading.

HOW DO I USE EXTERNAL FLASH?

Sony has designed the 707/717 with a double flash system. It works very well, but it emits two flashes in order to compute the proper exposure. The first flash is read by the camera through the lens and that informs the other camera systems how to expose for the *second* flash. Since only the imager chip is observing the pre-flash, nearby reflective objects that are not in the shot can't affect the exposure. Systems that have a separate sensor that reads the returning light can get confused.

However, the in-camera system doesn't trigger most slave units. Those operate by detecting the camera flash with a photocell and triggering their own flash tube, thus adding their light to the shot from wherever they are positioned. No wires are needed, but the synchronization of all the slave units and the camera flash unit is quick enough to appear as though they were all wired together.

The double camera flash confuses *most* slave units, but at least one manufacturer, DigiSlave, makes slave units that accommodate the dual pulse by firing their light on the second detected flash. Some models select this as an option. (www.srelectronics.com/)

Sony's own external flash unit sits in the accessory shoe, connects to the camera through the ACC plug and changes the entire slave unit equation. It *doesn't* double flash, so you can use it to trigger a whole studio full of slave units. This is a good thing, since inexpensive slave units can be $20 or less. It's not uncommon to use more than four slave units for a picture. Backlight, set light, fill light, main light, rim light—all these and more can go into a complex shot. Better that they cost less per each.

The Sony HVL-F1000. Direct flash vs. bounce flash. Each has advantages and drawbacks, but in general, bounce flash looks more natural and less paparazzi.

ⓘ The Sony HVL-F1000 flash unit tightly integrates with the DSC-F707/717 camera immediately. It understands the camera menu instruction to make the flash normal, brighter or lower in intensity. It connects to the camera's own system that tells you the flash is ready or still recharging. It causes the camera to correctly white balance for flash no matter what the camera's white balance was set to before the flash was plugged in. It angles up for bounce flash variations, and it has a built-in diffuser for use with the wide converter. And when you disconnect it from the camera, it politely goes to sleep—for weeks, if needed—and stops draining its batteries, even when you have left the switch in the On position. Moreover, since it is now hogging the one and only accessory plug on the camera, it has a pass-through accessory socket, which can be used with the Sony wired remote control. (This Sony flash unit is a bona fide treasure, but it is hard to find in camera stores. You may have to order it from www.SonyStyle.Com on the Internet.)

ⓘ Another manufacturer makes a flash unit compatible with the 707. The Promaster 5750 DX, flash with its Sony-compatible DX-series ACC socket trigger attachment easily illuminates subjects 50 feet away. A powerful flash for large scale illumination.

ⓘ The DSC-F717 has a center-pin hot shoe. A more intelligent holder for external flash units. This model works with almost all external flash units from a *wide* variety of manufacturers.

HOW DO I TRIGGER SLAVE FLASH UNITS WIRELESSLY?

Man, it sure would be nice to fire off extra slave flash units without seeing the camera flash in the shot, eh? For this, you would need to prevent white light from flowing out of the flash tube and onto your subject and still be able to use the camera flash to trigger those slave units. Can it be done? Yes!

Slave units—including the DigiSlave that works off the dual camera flash, or others, which work off the single-pulse HVL-F1000 external flash unit—all respond well to *infrared* light. So the simple technique is to filter the camera-based flash unit to emit only infrared (IR) light. How do you do *that*?

Here are three things you might use. Two come from Edmund Industrial Optics. They sell a "Thermoset ADC (CR-39)" material in a variety of sizes. It is cast IR transmitting plastic that looks black to the eye. Typical cost: 50 x 50 mm (2 x 2 inch) square by 1.5mm thick. About $6.30 plus shipping. But shipping can double the cost!

Look closely. The wide angle diffuser built into the Sony HVL-F1000 flash unit is clamped down over a piece of black 35mm slide film. Trim the film by cutting exactly through the middle of is sprocket holes. You will need a piece of film 12 sprocket holes long.

Also from Edmund are Kodak Wratten Infrared Filters in 75 x 75 mm size (3" square). These are gels with virtually no thickness so they can be cut to any size. Now the bad news: They cost about $ 50.00 each! That other little piece of plastic is beginning to look pretty good.

Cheapest of all is 35mm slide film (you heard me) that was *processed* but never *exposed*. Slide film has to pass IR light or burn up in a projector's gate—even if it is completely black—so they use dyes that soak up *visible* light but not infrared. The darkest black film is what you want. Buy a roll and send it off for processing without shooting anything on it. Or go to a lab that develops slide film and strike up a conversation with the person behind the counter. Try several kinds. To test for IR transmission, put a strip up to a window or lamp and look at it in NightShot mode. It looks like clear plastic! The clearer, the better.

Now tape or mount the IR material over your camera flash tube or external flash face. Some small amount of visible light will penetrate the slide film, but not enough to make a difference in your shot. The other two materials may show a deep red wink, but also not enough to affect your image.

HOW DO I KEEP DIRECT SUN OFF MY LENS?

The glare of direct sunlight can produce flares, circles and rings of color inside the lens, and the camera has no built-in lens shade to help control this. A high-quality, inexpensive, and aesthetically matching solution is probably hanging on an accessory rack in a camera store near you. Look for the Dot Line DL-1358 metal 58mm lens shade with its silver-sheen outer surface. It extends out from the exact diameter of the lens barrel by about an inch, controls off-scene sun glare, doesn't vignette in wide zoom and costs under $7.00.

ⓘ Highly recommended. Mine has absorbed a number of solid collisions that could have damaged the front ring of the lens itself. The springy metal took the hits without even denting. And it looks like it was made as part of the camera. You can even wedge the camera's own lens cap into the front of it for a friction fit dust cover. It just barely fits.

Another shade that works is the Dot Line DL-0470 rubber folding shade. Not as elegant looking as the silver

metal one, it allows the camera's lens cap, or filters, to mount inside while providing a rubbery "bell" of shade when extended.

Hama of Germany makes a rectangular lens shade that clips by friction to the outside of a 55mm filter. It has its own rectangular lens cap, too. You will need to have a 55mm filter (no need for the glass, just the ring will do) and a step down, 58 -> 55mm ring to fit it to the camera. And you may have to Epoxy the shade to the filter ring, just to avoid constantly having it slip off the 55mm ring. Friction is not a good method to attach this thing. I used Loctite™ Blue and have had zero problems. My camera wears it all the time.

When shooting in a careful, methodical manner with a sturdy support or tripod, the unusual option of a matte box may suit you. The main advantage of this is its variable bellows and ability to hold professional rectangular glass filters. This one is made by Ewa-Marine for small DV video cameras. Model K-100.

HOW DO I DISABLE FEATURES?

Certain features are inappropriate for certain situations. If you are shooting a dignitary in low light, the holographic focus projector could be mistaken by security guards as a targeting laser. You and your camera could be suddenly wrestled to the ground.

In some lighting situations, even the holographic pattern won't be bright enough to do any good. But it will call attention to you from the point of view of anyone who is struck in the eye with it. It won't hurt them, but they won't have any idea what your equipment is, or even what the nature of the pattern is. It's conceivable that you could panic them by hitting them in the eye with a red laser pattern, because on the receiving end, it seems no different from a laser gun sight.

That laser pointed at the politician can be regarded as a threat or menace...

ⓘ *SetUp* > *Camera(1)* > *Hologram AF* allows you to switch the focus projector off.

ⓘ Turning off the full frame and going with 3:2 aspect images creates shots that are a perfect fit to the popular 4 x 6 inch prints and your image files are about 11% smaller. That gives you one more shot with every ten. In other words, less is more.

The Set Up mode allows you to switch off *Expanded Focus, Digital Zoom, Red Eye Reduction* and camera *Beep* sounds.

Beep can be set to *Shutter, On* and *Off*. Of these, the *Beep* > *On* is the most entertaining, and causes the camera to emit a variety of beeps, dinks, chorus voices, etc. that are somewhat reminsicent of R2D2 in Star Wars. If you leave this *On*, you can get used to the sounds as confirming focus, selections, menu moves and alert messages. In *Beep* > *Shutter* setting, the camera emits a "motor drive" sound effect only when the shutter is pressed. It sounds like a miniature sneeze.

How do you say *gesundheit* in Japanese?

HOW DO I USE A UV OR DAYLIGHT FILTER?

The short answer is that you don't. While these work as protection for many other camera lenses, they're really *not* for the 707/717. If you have protected the lens mechanically with the lens shade mentioned previously, the added glass covering the optic will only become something of a nuisance unless liquid spray or blown grit is the problem.

The glass surface of a filter will reflect the infrared emitters and laser holographic focus projector in ways that will make you want to toss the filter where the sun don't shine. The back of a drawer, for instance.

Notice my added IR emitter blockers under the filter glass (top).

HOW DO I PRINT IMAGES FROM THE MEMORY STICK?

Images marked for printing are understood by Sony's own DPP-series dye-sub printers. Those printers will dutifully allow you to insert the Stick and print one of each image marked for printing. Other brands of printers that can read external cards can do this, too.

The DSC-F707/717 employs PIM, Print Image Matching, a color system created by Epson. Any Epson printer that contains the PIM system will deliver extra-good looking images directly from the Memory Stick. Of course, this assumes that you got the exposure and framing exactly the way you wanted in the first place.

Epson's exceptional EX-785 ink-jet printer accepts PCMCIA-card adapted media, including the MSAC-PC2 Memory Stick/PC Card Adaptor.

HOW DO I PLAY IMAGES ON TV?

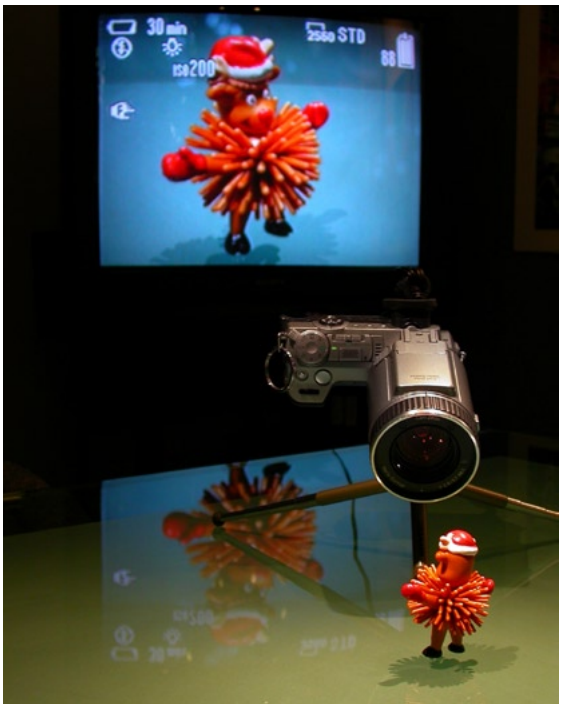
The included AV connection cord will wire you to any TV monitor, but you will have to select *Set Up* > *Setup3* > *Video Out* > *NTSC* or *PAL* in order to match your local video standard.

Now everything seen on your camera LCD—menus and all—will be mirrored on your TV. Thank goodness Sony included the Display button above and left of the LCD screen. That's the button that switches off all the menu and data overlays.

ⓘ The image on the TV screen is MUCH higher quality than you are used to seeing on the camera's monitors.

A live image can be somewhat distracting for subjects who may be able to see themselves on TV, but it can be fun to watch a kid or pet (or Aunt Martha) fascinated with the live video image of themselves. It beats having them say, "Cheeeeeese."

ⓘ An "RCA Barrel Connector" and an extra RCA-plug audio cord can extend the camera AV cord. One per channel. The barrel connector looks like a pair of RCA plug sockets stuck back to back.



HOW DO I ADD THE ACCESSORIES SONY FORGOT?

Well, Sony didn't really forget them. They just didn't include them in the box. The Cobra or Giottos Q-Pods are primary. A distinct "must-have" accessory. With three telescoping short support legs, they become a crude pistol grip (legs together) or a short monopod (center leg extended) while weighing nothing. Other accessories to review include:

The lens shade from Dot Line (DL-1358) will protect your optics from fingers, scratches and mechanical trauma for less than the price of a Daylight filter. It friction-fits your existing Sony lens cap so that will still be constantly available.

That Hana rectangular shade is more expensive and takes a bit of DIY to glue it to a 55mm filter ring for adapting to the lens via a 58 > 55mm step-down ring, but after all that, it looks cooler. More techie.

The 87C IR filter plus an ND8 neutral density filter will give you access to the warm world of infrared light that thinks it is heat. You can now see white trees, black skies and piercingly bright candles through a filter that looks as black as midnight to your eyes.

A PCMCIA card adaptor or dedicated Memory Stick card reader for your computer will allow you to download images at breakneck speed.

Quick release strap clips—not the triangular rings that come on the camera—can be attached to the camera strap so you can shoot with or without it dangling from the camera.

A 1.1-inch key ring circle attached to the camera strap connector on the right side of the camera body gives you the ability to connect the camera to your index finger so it cannot be inadvertently dropped. I have this on my camera all the time and use it always when the shoulder strap is unclipped from the camera.

A LensPen is worth its weight in gold. But it really doesn't cost much. It will keep your lens clean and dust free every day you use it. Use it *only* on the lens. Eyeglass cleaner is fine for the LCD and Finder optics, but these surfaces collect grit, and you don't want to pollute the LensPen with grit.

Another battery. You need at least two. Third-party batteries are becoming available for slightly less $/€ than Sony's M-type. I can't swear to you that they are "as good as" Sony's.

Another Memory Stick. Prices on these are eternally dropping. Some manufacturers are selling theirs at 2/3 the price of Sony's own. Avoid the premium versions that have a built-in write-warning LED. Your camera has that feature built in.

HOW DO I PLAY SLIDE SHOWS?

It's easy to make the contents of your Memory Stick play as a slide show. For best effect, hook the A/V connection cable to your TV's video in jack. Since sound is mono, hook the audio plug to the left input channel on your set. Put the camera into *Playback* > *Menu* > *Slide* > (duration)(*Loop Y/N*) and click on *Start*.

Durations for each image can be 3, 5, 10, 30 or 60 seconds per shot. Images play in the order they were captured.

ⓘ Vertical images must be rotated with in-camera editing in order to look right on the monitor or TV. Shots follow one another with very good screen visual quality. Transitions from shot to shot are clean straight cuts. If *Loop* is selected, the show will loop and run forever, or until your battery dies, whichever comes first.

HOW DO I RECORD AUDIO ON STILL IMAGES?

You can set the camera to record an audio caption of from 5 up to 40 seconds with every image. In any camera mode *Menu* > *Record Mode* > *Voice* adds a digital audio caption of at least 5 seconds onto every exposure. If you release the shutter button, you get the minimum 5 sec recording time. If you continue to hold it *down*, you can record up to 40 seconds of commentary, interviews or ambient sound through the camera microphone. It's mono, but recording quality is good for verbal notes and sound effects. This works with any size image and, of course, eats up a little more memory space.

Some pictures see *things*. Lion in Milan.

ⓘ In Slide show playback, any image captured with sound will run for the full duration of the sound recording, even if the slide duration is set shorter.

ⓘ Images with sound files show up in nine-way review with a musical note icon overlaid.

ⓘ You MUST decide to shoot in voice mode *before* taking pictures. Voice mode locks the camera to the minimum 5 sec post-exposure recording, so it is no longer easy to shoot quick follow-up shots.

HOW DO I TAKE THE CAMERA ON VACATION?

The Sony DSC-F707/717 is a Great Vacation Camera. Hands down, it beats any other camera I've seen for traveling. It isn't the smallest, most conveniently compact camera available, but its combination of zoom range, image quality, speed of start-up, exotic features and dependability wins my resounding applause. I took it and three other digital cameras to Italy and shot literally thousands of images with the 707 in every kind of situation from black of night to full daylight, from normal to impossible exposures, from carefully prepared to completely spontaneous shots and came away from the experience with more good images than I had any right to. The 707 captured more shots than all three of the other cameras combined.

Some pictures *tell stories*. Help, I'm Surrounded by Youth!

Along the way, several things became clear. You need to take the 707's giant AC-L10B battery charger and at least two NP-FM50 batteries with at least two 128 MB Memory Sticks. You must have plug adaptors for foreign AC sockets, but the battery charger is good for 120 and 240 volts. One battery and one 128 MB Stick are a pretty good match to each other, the way I shoot. I often would run out of memory and power at about the same time—in my case, after about five or six hours of taking many shots. Of course my strategy is to shoot most images at 2048 pixels wide, so my shot count per Stick was in the 150 range.

Standard compression isn't perfect, but it is virtually invisible. Very few images were taken at the higher quality of Fine compression, and that allowed the Stick to hang on to more images per megabyte. Your mileage will vary.

Downloading every day's shooting is a must, in my case. If you can't take a portable computer with you—and I for one would never leave home without it—then a large capacity image bank storage device is called for. Check out the battery operated NixView Vista or AC-powered Cardmediaviewer. Check the Appendix under *Memory: Portable Storage*.

The Q-Pod sat under my camera 100% of the time and never slowed me down. It was used on railings, tables, marble columns, posts, chairs, trash bins, bridges, balconies, desks and my own lap countless times. A filter stack for IR shooting and the Sony Wide Converter followed me everywhere.

My own attitude of "shoot pictures first and ask permission later" got me more images in interesting places than asking first did. Flash photography was avoided, and longer exposures under the prevailing light met with greater success. Especially in museums and public places. No sense looking like every other tourist. Discrete photography can be accomplished with the twist body's LCD, but most of my images were gathered using the Finder in SLR mode.

Some pictures *happen over time* without being images of motion. Traffic Ballet.

The single most useful piece of advice I would pass on to a vacation photographer might be this: the images you gather are more about remembering the place, the artifact, the environment, the building, the vista and the experience, than about creating yet another picture of family members standing with their backs to the thing that you came to visit. It's okay to include your family in your memories, but you will never sell a picture of Rowena with her back to the Trevi Fountain to a travel magazine. In all new places you will find visual stories that appear to your fresh eyes. As you gather these novel impressions, you will be capturing your authentic sense of surprise and delight.

In other words—shoot the thing to capture its essence, its story, its place in your memory of it. Shoot it from many angles. Include people in your shots, not as posed-looking artificial records of their having had their pictures taken, but as living, interacting candid elements of your experiences with the place you are visiting. The camera in your hand is capable of making outstanding large prints that could grace the pages of any travel magazine. It is capable of crystallizing a moment that can never be repeated.

As a tourist, we see things that seem commonplace to the locals. In this case, the Vatican in Rome.

Chapter 6

Learning Digital Photography

Shooting for Experience

You may think it's a camera, but that thing in your hand is a computer with an eye. With no film to buy and no waiting for developed images, errors can be headed off before the situation fades, and the entire process of learning how to take pictures is new.

You have the camera. You have the knowledge to make it operate. Now let's get some experience and practice under your belt. The first thing you do is make new images from old. (We'll get to the new pictures soon enough.)

BECOME A CROPAHOLIC

ⓘ = InfoBite

Armed with your new found appreciation of the center of interest rule of thirds (and iNovaFX iRuleOfThirds Action), look at some of your *old* images and fool around with cropping them to better fit that rule. No matter which edit program you use, if it can crop your pictures, it will help.

Remember to do this only with *duplicates*, not originals.

After doing this twenty times, you will begin to develop a feeling for clustering important elements in your croppings, and you will notice that many images actually get a whole lot better by concentrating on LESS of the original than you captured with the lens.

Architect Mies van der Rhoe always used to say, "Less is more." (I think it came from his diet coach, but he found that it applied to the field of design as well.)

Pretty soon his students were chanting it as if it were a mantra on the Zen of composition, and in the field of retail discount stores, it found a permanent home. In photography, cropping is the *first* level of post-production. Less image = More picture.

The image in your camera starts out with a 3:4 or 2:3 aspect. Nobody said it has to stay that way.

As you are cropping the bad parts out of your old images, that inner voice will soon be whispering, *Hey, if you had been thinking like this when you were taking that picture, you wouldn't have to do this now.*

The louder that voice whispers, the more you WILL be shooting better-cropped images right in the camera.

GET OUT

Now we push you out the door and into the surrounding neighborhood. A flower here, a puppy there—get them out of your system. Ah, there's someone who will be only too glad to pose for your new camera. Clickity beep.

FIRST EXERCISE, A PORTRAIT

Now fully aware of light, shadow, composition, cropping and framing, you shoot at least ten images of your subject's head and shoulders. Some fairly straight, some to the side, perhaps even a profile.

As you shoot, tell them how good they look (in the new camera—somehow different, somehow special), how the digital camera actually makes them look younger, slimmer, or prettier.

Interestingly enough, although it may seem like the least sincere thing you could say, you are not lying. You are predicting.

The more you tell people this, the younger, slimmer, and prettier they begin to BE for you. After as little as two minutes of this you can get them to "work with me" trying for a really nice picture, (you know, something like you see in print. Something with character.)

Now it is time to collaborate. Find some shade or any good place to review the last few images.

Here's a good one. This didn't work—I was too far back. This would have been the best if you had been looking here and your chin had been lower... Analyze the images with them and before the light changes, shoot twenty more.

When the pose gets stale or too forced, back off, tell your subject to relax. "Let's try it a different way."

You are not just getting them to freshen up, you are getting YOU to freshen up. Walk around them looking for angles, changes in the light or changes in the background. Set the camera to manual focus so the background doesn't steal focus from your subject and ruin the shots.

Some of the best portraits are done with a slightly telephoto lens. In 35mm photography many photographers prefer 85mm, 105mm, or 135mm lenses for head shots. You have all of these. Stay at the upper range of the zoom, and try to shoot verticals at least half of the time. This is easier with the Finder than with the LCD.

By the time you have spent 30 shots on your subject, you will have probably shot at least two very good pictures and half a dozen pretty good ones. By shooting the full 30 exposures, you will be acquiring a visceral understanding—something every professional photographer has always known—the more moments you capture, the better your odds of getting the Best. When your subject sees the good looking result, obviously the camera is the reason. Stifle that chuckle and keep moving.

Note: Not all images in this section are examples of how the Sony DSC-F707 renders this or that sort of subject. Images captured with the F707 are identified by a very small caption running up the lower right side of the shot. As in the candid portrait above. As is my practice, I have adjusted most of the images in Photoshop 7 using the techniques found in Chapter 4 and many of the iNovaFX Actions. Some of the captions on the Sony DSC-F707 images hint at the sort of corrections used.

NEXT EXERCISE, GEOMETRY

Now you are looking for one thing and one thing only. Interesting shapes.

The curve of a railing, the abstract nock of a tree limb, the pattern of texture, the legs and feet of somebody sitting, a reflection, the texture of peeled paint, a bunch of birds on a wire, a leaf, a row of books, an architectural detail, a car's grill…

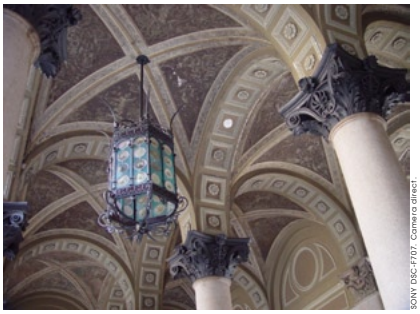
There has been more than one award-winning photo of each of these ideas and you may find a billion other interesting shapes in nature, the city, people, and things around you. If you must shoot a flower, shoot for the radial symmetry, if you must shoot something square, find an angle on it that lends a certain abstraction of its form to the photo. Capture 20 subjects.

Keep thinking "Form. Shape. Pattern," repeating this mantra over and over in your mind. When you review the shots, separate them into three groups, Junk, Hmm, and Okay.

Then go out and repeat the exercise.

This time the review will have about 50% improvement in the Okay category. Quality, quantity, or both will have gone up.

When you feel stale, do the geometry exercise. The film is free, the shapes don't need coaxing and often the results are rewarding.



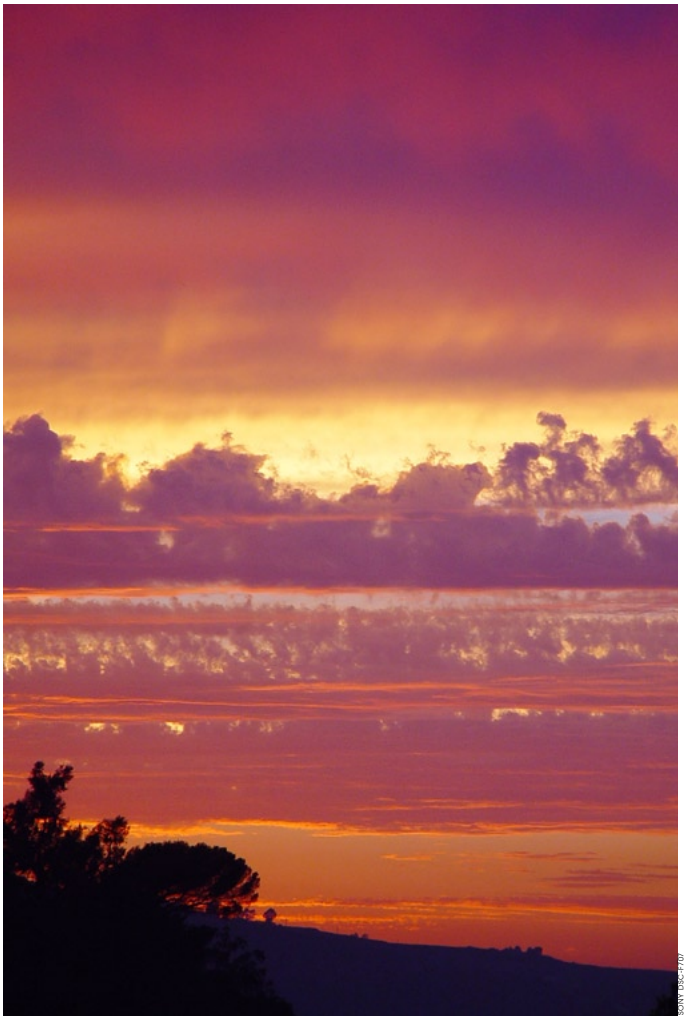
NEXT EXERCISE, THE SKY

Most inspiring at dawn and dusk, the sky can be interesting at any time.

Don't just think of the sky as a cloudy thing. Think of it as a light or a backdrop. How does the sky interact with trees, buildings, windows, light poles, clouds, horizons, mountains and people? At noon you might have to get real low to put people up into the sky. At sunset, you might have to get up high to see how the sun casts shadows across the ground.

With flowers, you might just have to put them against clouds or vast expanses of blue. The more you look, the more often you will see an oddly shaped cloud, a blotch, a wisp, or a plume that might someday be useful.

Shoot it now, use it later. And on those days when the sky dresses up and just begs to be photographed, take out the 707/717 and oblige her.



NEXT EXERCISE, ROUND

Things that are round. Things that suggest roundness.

Circles, semi-circles, ovals, curves, round things against jagged things, round things inside square things.

Christmas ornaments, watches, bowls of food, wheels, eyes, signs, architectural features, rose-ate windows, grapes, baseballs, and knobs—whatever works.

Now advance the lesson. Shoot them in such a way that if you were to dissolve from one to the next, the "round" would carry concentrically from shot to shot. This, like the geometry exercise, is a good refreshing activity for times when you need a cup of photo java.

NEXT EXERCISE, BUILDINGS

As subjects rather than elements, buildings are full of opportunity, inside and out.

Their architecture has form that compels us to enter, love, hate, or ignore them. They try to look appealing, professional, industrious, graceful, practical, bold, comfortable, utilitarian, and secure. They are ornate, simple, weathered, exotic, misleading, and/or stunning.

Whatever impression a building makes on you, try to find the time, lighting, weather, angle, and composition that causes your image of the building to convey its impression to others through your photograph.

You may go back to this building several times in the course of the next year, and each time you will find something new about it to reveal in an image. If the whole building doesn't fit, make shots of it into a montage.

A good way to start is to have a straight-on flat symmetrical shot of the entrance. Good, you got that out of your system.

Now find the ways of interpreting the building that cause it to have character. Notice, at no time did I say you had to have the WHOLE thing in each shot.

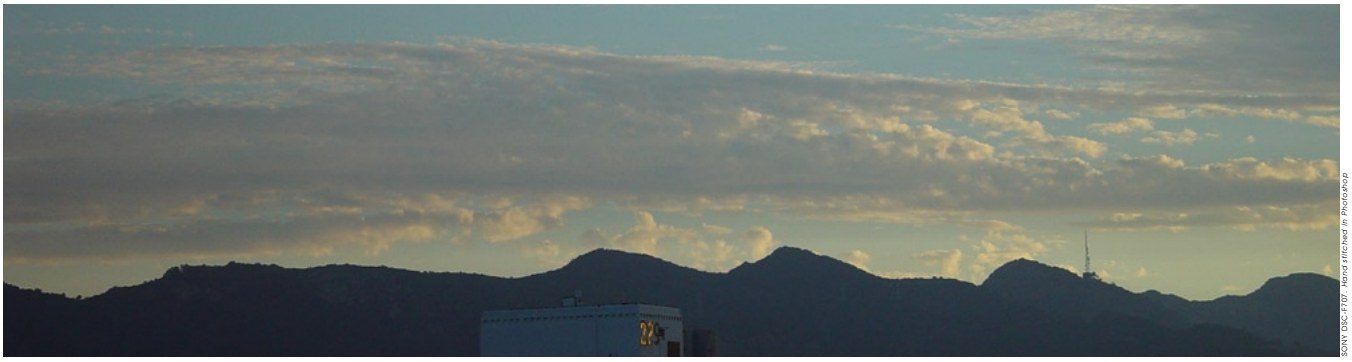
If straight lines become a barrel-distorted problem, the iBC Photoshop Actions on this disk will help.

SONY DSC-F707 Perspective adjusted

SONY DSC-F707 Camera tilted

SONY DSC-F707 Camera tilted

NEXT EXERCISE, PANORAMIC VISTAS



The specific form of this image will most likely be wide. Vertical vistas are possible, just not terribly vista-like. In order to make the image you will stitch several overlapping images together, so you will have to shoot all of the segments within a few moments of each other from the same point of view. Now would be a good time to use manual exposure because panoramics need matched exposures for each segment. Two- and three-panel panoramics are common. Five and up are downright challenging.

You may wish to shoot the center panel first, noting on the monitor, or in the Finder, where the edges of the picture fall on the subject. This will help you slide the view to the left and right catching matching side framings. As you shoot, give a generous overlap to the pictures. A third of an image-width is good. Twenty percent of an image-width is skating on thinner ice.

Rectilinear wide-angle images make straight lines look straight, but objects at the edge of the picture are now size-distorted by perspective.

The more shots you have available for stitching with major overlaps, the greater your chances of stitching them together in ways people won't detect.

Telephoto vistas are particularly interesting; if you shoot enough segments you have a super-detailed wide angle shot. The longer the lens (more tele), the lower the perspective distortion.

Yes, a tripod will help here, too. So will careful study of the topic in Chapter 5.

Back at the computer you can use any of a number of panoramic stitching programs to marry the shots together. (After you apply the appropriate iNovaFx iBC and iDSL Actions, of course.) As you work, you will become aware that features often don't line up just right from panel to panel, and double images in the overlaps are becoming obvious. The trick is to make them go away completely while maintaining apparently correct perspective across the blended seams.

If you have Photoshop, the Transform function will give you control of rotation, size, perspective distortion, corner pinning, skew, keystoning, and position all within one control. By applying this single tool to the images adjacent to your central image, all sorts of geometric flaws can be finessed into place to not just make an overlap area work, but to make the side images into true extensions of

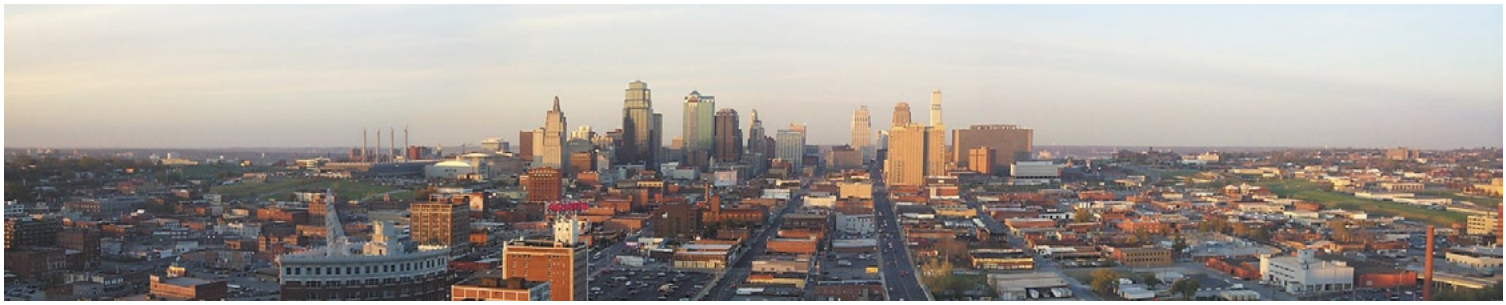
the central image. Again, explicit details on how to use this tool are in Chapter 5.

If a panoramic isn't quite making sense today, put the originals away and approach it with fresh eyes later. Finessing a panoramic isn't always easy, and starting over can often be better than endless tweaking.

A good way to work is to put the adjacent images into layers over a single starting image. One layer is turned off, the working layer is set to 50% transparency, and the Transform tool is used to manipulate it into place. Often, the side image won't fit perfectly, but you will be able to get a vertical-column area of it to match the underlying image quite well.

It helps if a feature like a tree, or any strong vertical linear object, dwells in this area. If a straight-line object like a building or street cuts through the seam, you must pay quite a bit of attention to correcting or minimizing perspective changes from panel to panel.

When a panel just doesn't fit or shows disproportional stretching (top and bottom details work, but whoa, the middle details aren't a linear fit) occurs, use the Photoshop History palette to start over.



Your first attempts will guide you into seeing how easy it is to make mistakes. Your second attempts will be better. If you do this ten times, you will start teaching other people how to do it.

NEXT EXERCISE, REPETITION

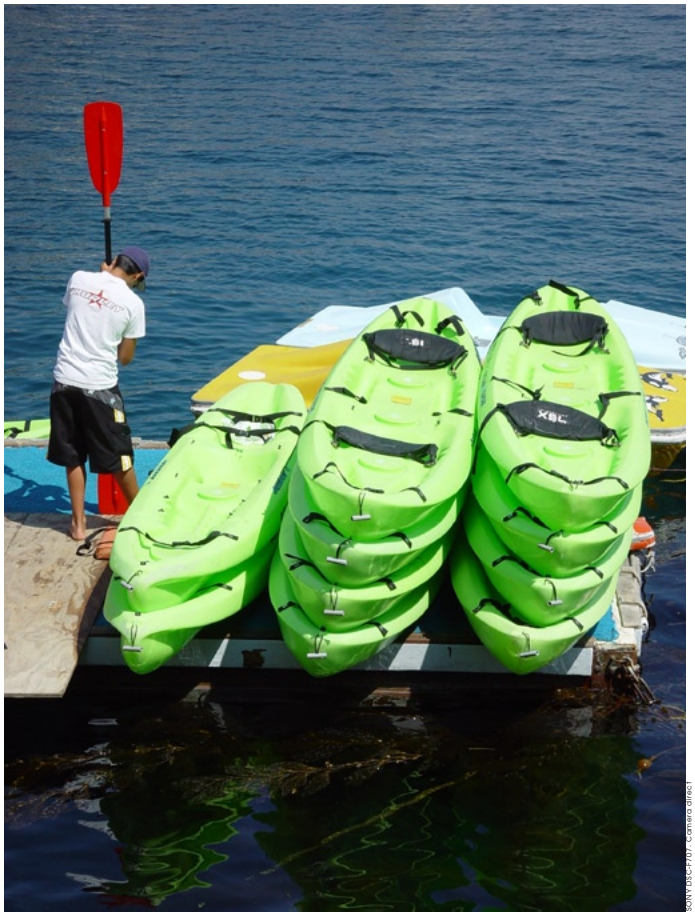
Here you are combining experiences gained from a number of previous exercises and adding a new X-factor. Repeating *similar* elements are the target. There must be three or more similar objects in a creative relationship to each other.

They can be as similar as fence staves, windows of nearly identical shape, palm trees all in a row, uniformed people, feet, whatever. There is no limit on things like having them all face in the same direction or be in the same light. Points are subtracted for factors like "too dissimilar" and "too far apart to connect the similarity." "All boys" doesn't count.

A good thing to try for is dramatic direction. All the flags were blowing straight out, all the cops were looking at the same thing, all the birds were pecking at once, all the palm trees were the same shape, etc.

Then there is the *special* factor. The counter point. All the cops were looking at the same three-year-old in the red dress, all the birds were pecking the same eight inches of birdseed; all the windows were the same except for the one with a person sitting in it.

Symmetries of repetition are many. Certainly the things-all-in-a-row idea is easier to find than the things-all-radiating-from-a-point is. But in photography, odd relationships can form symmetries of balance in which "birds of a feather flock together" is counter balanced by "there's one in every crowd."



NEXT EXERCISE, MICROVISTAS

Let's get small. Click the Macro mode on and keep the zoom fairly wide. Now the micro world opens up for you.

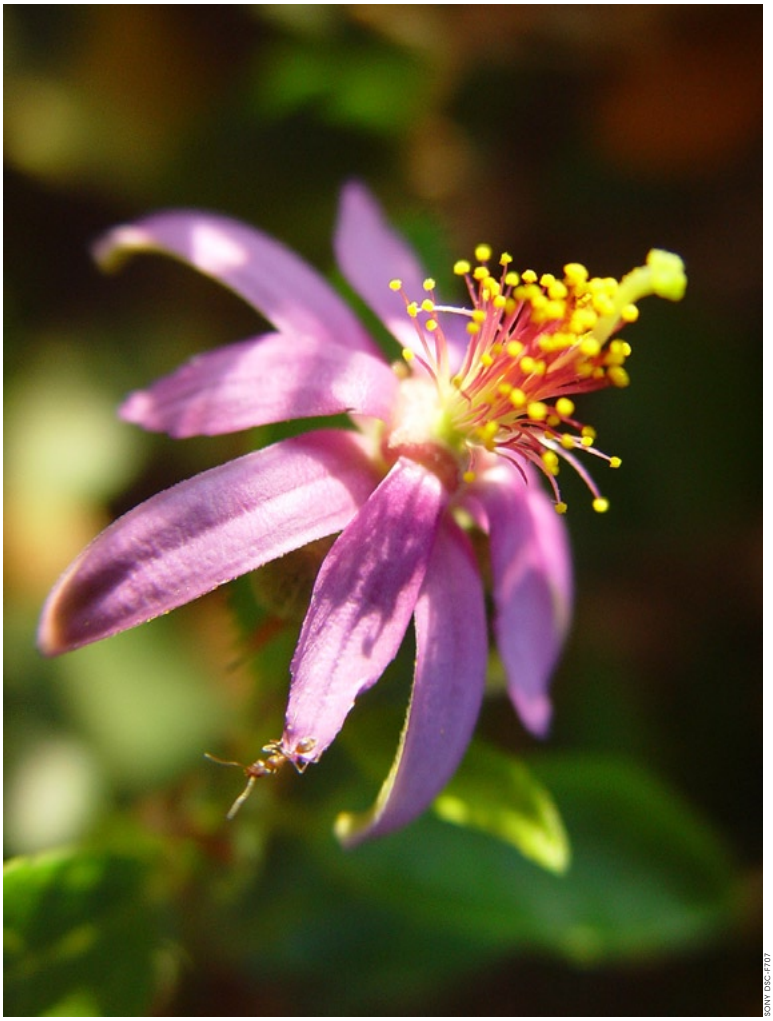
Auto-focus may not help, especially with subjects that stand out from a more distant background. Remember the principle of Stolen Focus. Detailed backgrounds will steal many auto-focus situations. But manual focus will let you move the whole camera in and out of sharp focus. That's how I got the ant on the flower.

Microvistas can be any subject, but the area you are going to shoot is 2-1/2 inches wide or small enough to cover with your hand.

Shooting in nature—or even a window box—you never know who is going to show up to have their picture taken. Keep an eye peeled for small-scale textures. If you take a picture of a telephone keypad, get a real grubby one or an exceptionally interesting lighting pattern into the shot.

If it's the contents of a pocket tossed on a table, include clues to a crime.

If you shoot an eye, make sure it was projecting an attitude.



Who done it? And with what? And where in the world was it done?

NEXT EXERCISE, AVAILABLE DARKNESS

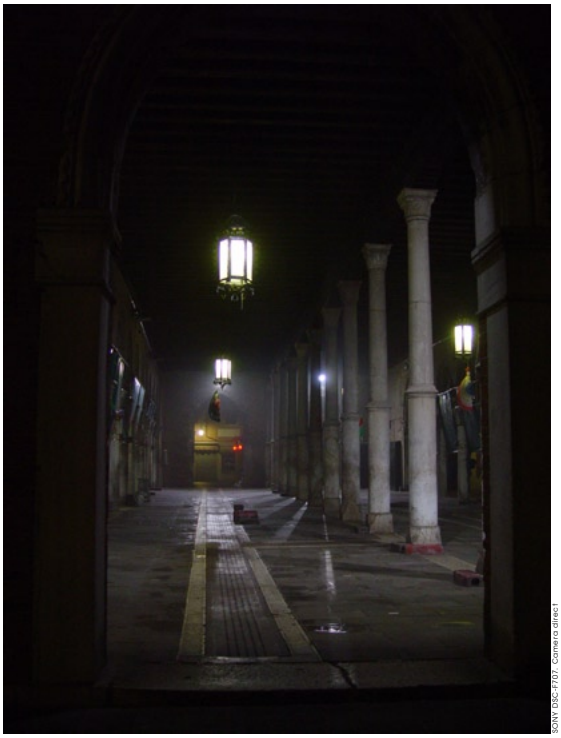
With the ISO of your camera set to maximum, the electronic film is working within the realm of "available light" photography. Knowing that you can drop images in the computer and manipulate the exposure upward there, don't be shy of underexposing. The iNovaFX iISO2Taste filters will allow you to recover two or more stops of detail in many cases, so your available range is higher than your camera may think. Manual focus will help when the light level is low.

Street light offers plenty of usable lumens. Candle-light will work if the candle is close enough to the subject. Night shopping areas are lit well enough to shoot. You have the option to make black and white images.

Your subject will be the darkness of the environment and how only available light could have made them possible. Include the glare of background lights; go for the signs, the deep shadows, the half-revealed surfaces, and the unseen faces.

Night is kind of spooky, and your pictures may show this. The blur of movement will become a treasured dynamic element adding to the effectiveness of the shot.

Don't be surprised when you find yourself not only lightening the images in the computer, but also darkening some to accentuate the effect.



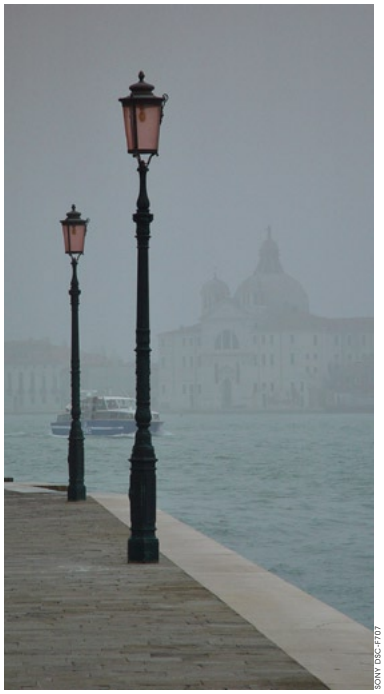
NEXT EXERCISE, THE CHARACTER OF...

Pick a character-filled entity.

Here is your chance to portray that character in a series of images. Dog, cat, mother-in-law, stranger, tree, city, team, whatever.

It will end up as a layout on a *single page or spread*, as in a magazine, and must contain from four to eight images.

The character of the piece must be easily perceived by casual viewers once they hear its title. Some subjects beg to be shot over great expanses of time. *This Tree Throughout the Seasons*, for instance. Try for something more immediate. Here's my own take on *Hidden Venice*.



NEXT EXERCISE, INFRA-RED

Here you are doing one of the "See Differently" exercises. The scene in front of you and the scene you end up with are radically different.

For this exercise you will need, at minimum, a deeply neutral density filter that cuts the light down to about 0.0019 % of normal level. An ND400 filter will do that by reducing the light by 9 stops. For better performance a black-looking IR filter will help.

Filter combos that work include ND8 + ND4 + IR72 (87 equivalent) and ND8 + Polarizer +093 (87C equivalent). Or you can try unexposed, developed transparency film.

You will be looking for situations in which the unusual black sky, white vegetation, or both play a part in the composition of the image.

Outdoors, viewing is best handled with the Finder screen. The B part of this exercise is for Photoshop manipulation. "Lab" color has a luminance channel and two color-difference channels. IR photos are quite B&W in content. What happens to a shot you make in *both* color and IR when you substitute the luminance channel of the color shot with the IR gray scale image?

Of course, you will need that tripod, and both pictures must be taken in-register with each other. No moving, now.

SONY DSC-F707: Neutralized

SONY DSC-F707: Neutralized and hand colored.

SONY DSC-F707: Night Shot's normal color.

SONY DSC-F707 + IR VERSION

NEXT EXERCISE, BLACK AND WHITE

Set the camera to manual, and invoke the *Menu* > *P.Effect* > *Sepia* option. The color is gone. White balance doesn't affect the image. But ISO does. Set it to 400 and you're shooting with Tri-X. The world is a rich gray-scale of tones and shadings. You are seeing them with a reddish tint, but in the computer later, you can make them color free, pure monochrome by simply copying the green channel to the red and blue channels. An iNovaFX action facilitates this, too.

Now, go outside into the daylight where the great photon generator is doing her job. The things you will be shooting are the things that will teach you the most about contrast, long gray-scale, and exposure. Bracket some shots. Shoot them a bit under- and a bit overexposed, as well as at the exposure the meter picks. *Menu* > *Rec Mode* > *Exp Brktg* will shoot a fast 3 image bracket, and you can set the exposure differential with *Set Up* > *Camera* > *Bracket Step* > ± (0.3 - 2.0). If the shots blow out due to overexposure from the elevated ISO, you can bring the camera sensitivity down to better acquire the image.

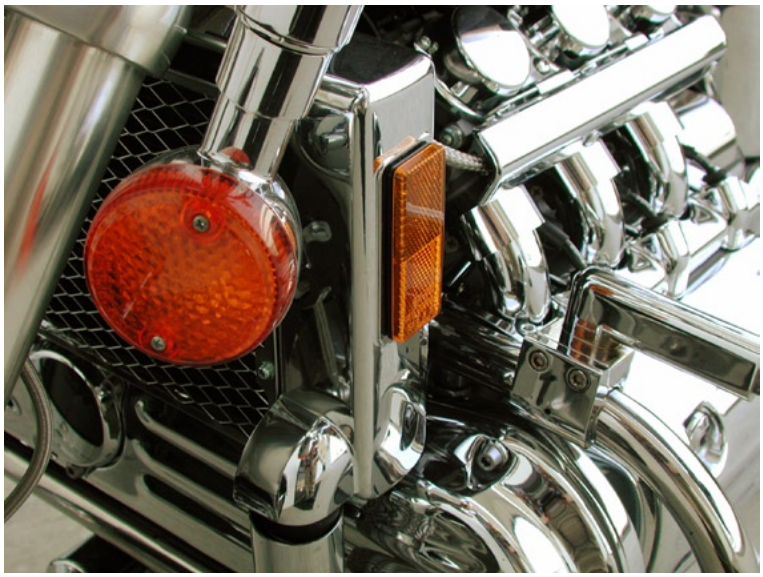
Back at the computer, the realities of B&W is a whole different world. Paul Simon to the contrary, not everything looks worse in black and white.

Part B of this exercise happens when you make B&W images from shots that started in color. The iNovaFX filters that create monochrome, film-response images from color shots will help.

NEXT EXERCISE, FOUND OBJECTS

Things that are local items or arrangements but not microvistas—as-is without digital darkrooming. A bracelet in close-up. Furniture or ferns in a group. A jar of preserves; a door ajar.

Things you might never in your life have considered to be photo-worthy are now your subject, and you must make these photos worthy of existence by their composition, unmanipulated lighting, pose, silliness, seriousness, scale, drama, juxtaposition, or by the attention you have called to the objects simply by photographing them.



NEXT EXERCISE, SKEW

Here's a new twist! Every subject in this exercise will be non-level.

Either the camera is twisted, or the subject itself will be in a physical orientation that isn't a normal, expected angle. People lying down doesn't count. People upside down or oddly slanted does count.

The goal here is to portray the world in a way that causes it to be seen both from and with a new angle. Photographs are usually viewed level, cameras are not nearly so formal.

Your mission is to move through a situation (city, country lane, garden, family reunion), gathering at least a dozen good skewed pictures that force the viewer into a *new appreciation* of the subject because of its non-level presentation.

NEXT EXERCISE, PICTURE IN A PICTURE

Sometimes the world conspires to give you an image inside a larger image. Not just a picture of a picture, but a pictorial image in an unexpected place.

You are looking for pictures in frames that are made of reality. An alley frames a distant skyline. A public mural is all the more poignant because of the people or events surrounding it.

Find a half-dozen of these in the next week. Look back on the situations that presented the PIPs as they change with the time of day or seasons. Keep trying to improve on the first shots you make by topping your previous shots.

Widen the definition. An otherwise photographic situation filled with unexpected photographs or images—or even photographers and their subjects.

NEXT EXERCISE, INTENTIONALLY BAD PICTURES

Get trees to grow out of people's heads.

Arrow signs to stick out of their ears, poles to start at the bottom and stop exactly at the borders of the image.

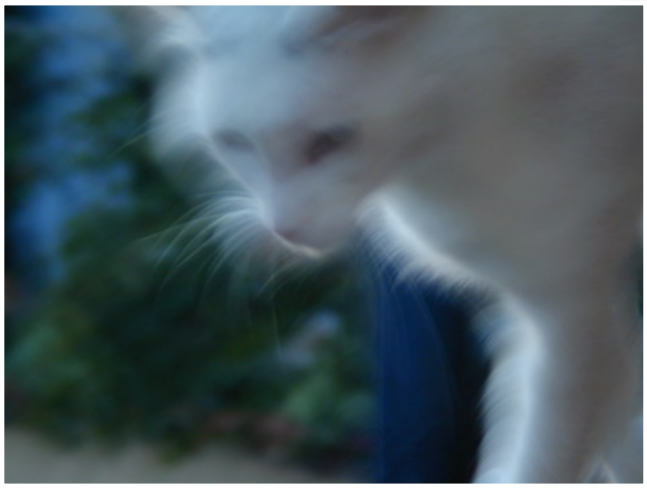
Make too much head room or crop people at the eyes. Crop out the dog's face, just get his feet. Twist the camera two degrees on a sunset that is dead center without a cloud in the sky.

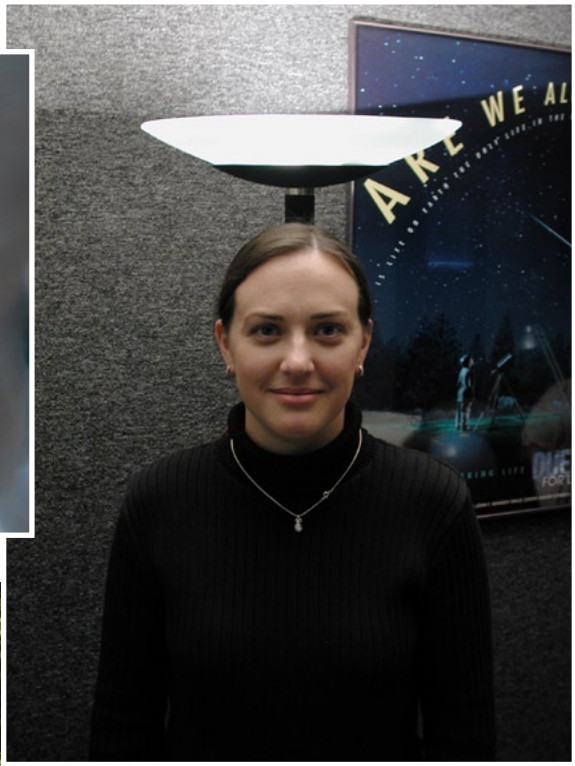
Make some nice blurred shots from too-long exposures. Shoot pictures that are too dark, too light, and completely uninteresting. Now look at your stuff. It looks like lots of images you have seen other people produce, doesn't it?

If you can do it on purpose, you can undo it on purpose.

The weird thing is—some of them actually aren't "bad." Hey! Ponder this as you drift off to sleep tonight.

Then go out tomorrow and shoot a bunch of intentionally action-smeared images.





NEXT EXERCISE, IMPROVEMENT

As shot, it was a picture, all right. But now it's about to become something more than the camera could have ever envisioned it. Where the perspective was ordinary, the new perspective is assertive. Where the original subject was nice enough, now it's art.

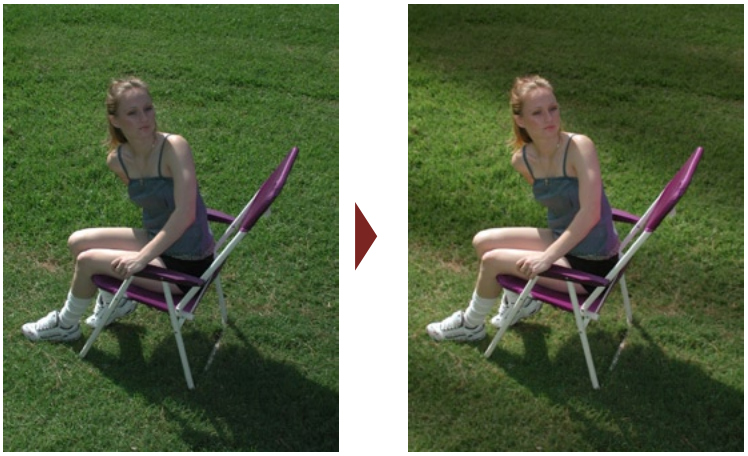
Your arsenal consists of everything you can do to make this image into something that transcends its humble beginnings. A casual viewer should be able to look at these results and feel like something new has definitely taken place here, especially if presented with the "before" version. Special effects, filter treatments, distortions, crops, color changes—all that stuff is fair game here.

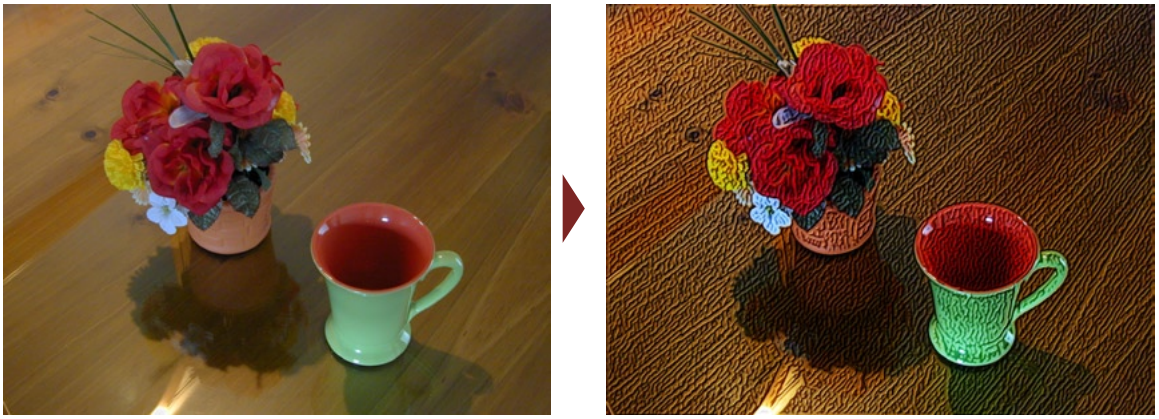
The more oohs and aahs you get from people, once they see how far you have taken it, the more points you acquire.

Top: Perspective correction as with a 4x5 view camera.

Middle: Tonality improvements plus Photoshop QuickMask creating artificial long shadows to dramatize the situation.

Bottom: Abstraction of an already very abstract still life using a third-party plug-in with Photoshop; Kai's Powertools Version 6.





NEXT EXERCISE, LIFE'S STORIES.

The world is full of stories. They are playing out in front of you every day. Some are simple, others complex. Some are laced with tragedy, others with humor. Often the juxtaposition of polar extremes come together in a single frame or within a single subject. You will be lucky to find an image that connects opposing forces in a single shot, but you know it can be done as you study the work of photographers. Now it is up to you.

Find the situation, or allow it to find you. Open mindedness is the subtext. Then shoot for the single image and/or the story telling sequence—whichever is right.

NEXT EXERCISE, IMMERSION.

Surrounded-ness. We started this chapter by shoving you out into the world. Now dive into the subject. Get into the middle of something and allow it to seem all around you in the shot. It could be a bush, a bunch of tangles, a cluster of items, anything that seems to surround the camera or some innocent bystander. Something special about the shot should make it seem that the camera is on the inside looking out, or something else is.

NEXT EXERCISE, FORMAL EDUCATION.

Now you are to shoot a design piece that might have been a high-end catalog image. Not that the two are indelibly linked, but that much of our photographic experience these days is in the very tight world of objects intentionally composed and lit to convey the interesting qualities of their presence.

Can you turn your cell phone into a thing of beauty, the way the catalog cover or advertisement for it would have shown it? Can you take a piece of fruit and tell a visual story about perfection, taste, and desire?

Challenge yourself with the limitation of photographing things on an unbroken sweep of paper. No matter what the light, you can always perform a manual white balance to achieve color neutrality.

Food is always a good subject. The Japanese cookies in this small brandy snifter were photographed under fluorescent light in my kitchen. Total setup and shoot time: seven minutes.

The limits for this exercise are that you must organize small things on some sort of background, light them intentionally to bring out features, textures, surfaces, and mass, and with a single exposure create a rather formal image of the object(s) that has a story-telling or illustrative subtext or context.

NEXT EXERCISE, PORTRAIT

Say, didn't we start here? Not exactly.

Now you are more experienced, wiser and capable of greater things. Because you've changed, this has become a different exercise.

Get the same or another friend to pose for another portrait. The lighting you choose this time will be more interesting. The background more controlled, the pose more a part of a composition. Things you applied to simple objects, vistas, night shadows, geometric shapes—all will be in your head competing for a place in this portrait. Now shoot twenty shots and review.

You are getting better, aren't you!

By now you are ready to make your first gallery, maybe even your first digital portfolio.

NEXT EXERCISE, PORTFOLIO

Are you ready for an on-line portfolio?

Photoshop's features will help you prepare files of thumbnails that link to files of full-size images ready for the Web (*File > Automate > Web Photo Gallery*). Other programs perform this function, too. And this is as far as most people take the idea.

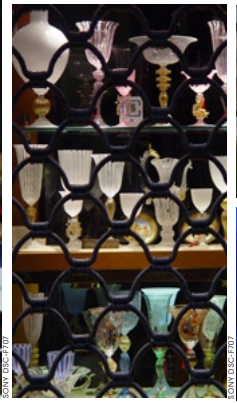
But the core of an on-line portfolio has much more to do with the content and showing it in a good setting, than with the simple mechanics of allowing access to a collection of images.

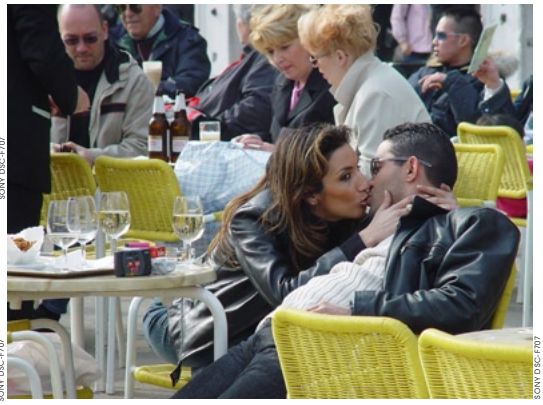
With a print portfolio, the context is fixed. It's a book. Pages can be arranged and composed and the book itself can be quite impressive and customized. Sequences of images can be arrayed over several pages creating a scene-to-scene reveal, but it won't have the interactive flexibility of a Web page.

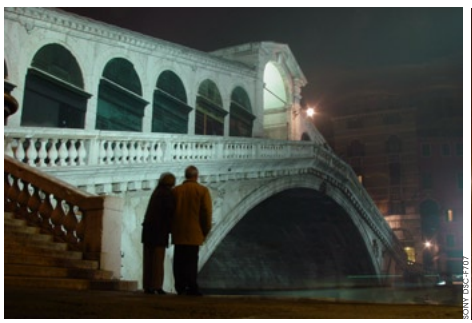
To show one's best work on the Internet, a new approach will help. The cluster of images below would not make a good portfolio page, it's too busy. But it might make a good table-of-contents page in which a click to a picture causes a jump to a larger image or series of images.

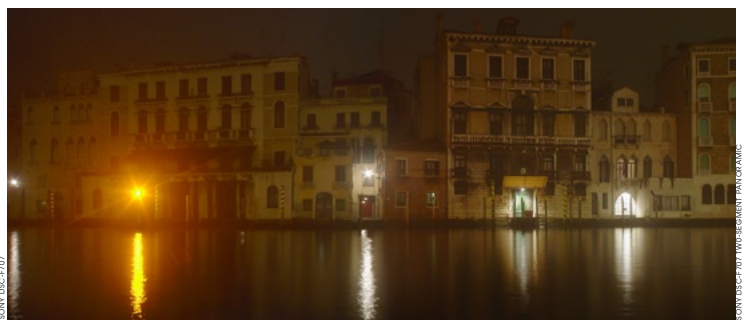
The exercise is this; create an on-line portfolio of your best images. Animation, flash, and dazzle are optional. It should become a good, solid review of images in a form that readily communicates a particular style, eclecticism, broad or narrow range, vision, and/or competence in the type of photography you enjoy most.

This portfolio can be reviewed on the Internet at an address known only to readers of this text. Check it out at *http://www.digitalsecrets.net/Sony/portfolio/Venice.html*









Chapter 7

Printing Digital Photographs

Custom Prints on your Desktop

The digital darkroom needs no plumbing, but just like a chemical darkroom, it needs understanding, technique, and experience. That last item you'll have to get on your own. Here's some help with the other two.

Ergonomics is about things that work. Effort spent. Ergs are measures of effort, and I suppose nomics are things you spend. Ergonomics is the study and application of things that fit human-scale activities and needs in logical, even effortless ways. Small, one-hour photo prints fit our scales of *low-cost, easy-to-put-in-an-album,* and *minor-importance*. Eight by ten prints fit our human scales of *easy-to-look-at* and *moderately-important* at the same time. Substantially larger photos fit our scales of *this-is-so-very-important, to-be-viewed-at-a-distance,* and *ready-for-framing-as-art*. The Sony DSC-F707 camera certainly conquers the first two domains and has a well-defined role in the third.

ⓘ = InfoBite

SIZE MATTERS AGAIN

The ergonomics of prints begs the question of what is the right size print? For most people, the 4 by 6-inch, one-hour photo print is what their film camera produces, end of story. Many people accept a panoramic blow up from an APS film camera that is about ten inches wide and think of it as big. These images are relatively sharp and colorful and widely accepted even though they are viewed at a distance that is way out of scale to the angle of view of the taking lens.

Out of scale? What could that mean?

The standard 4 x 6-inch (100 x 150 mm) print. It takes up a nice chunk of space on a page and fits our hands well. A small amount of top and bottom had to be trimmed to fit it into this 3:2 aspect ratio.

Try this (even if only as a thought experiment): Shoot a picture from the comfort of your favorite chair and have it printed into the regular 4 x 6-inch print. Later, sit in the same chair and look at the print the way you would normally. Your eye/brain system will compensate for the discrepancies between reality and photography, and no doubt everything will seem just fine. The fact that a 45°-wide field of view is sitting in your hand occupying 12° of your field of view won't seem odd. We are used to it.

Now hold the print up to one eye until it matches in size with the view you shot. Close to your face isn't it? Is that a comfortable viewing distance? It will float five to eight inches from your face if you used a normal or wide-angle lens on the original picture. Can you comfortably focus that closely?

A 5 x 7 print of the same shot will line up further from your eye and an 8 x 10 print will feel downright comfortable, being quite close to your normal reading distance.

Under a magnifying glass, the 8 x 10 will reveal surprisingly little extra detail when closely compared to the 4 x 6, so why bother making the blowup? We like the larger prints because they meet our need for easy viewing. Sharpness isn't the ergonomic issue, comfort is. But, large prints cost more. A dozen times more expensive than the one-hour print 30% of their size, and the wait is much longer for the 8 x 10 to be produced photographically.

Oops! Waiting, spending extra money, and not being able to control the process feel a lot like non-ergonomic qualities. What if you could have the 8 x 10 print delivered to your desktop in three and a half minutes for about 95¢? With the combination of the right digital camera, computer, and photo-quality printer, you can.

DIRTY PICTURES

Another factor adds to the enjoyment and usefulness of digital images. Gradue. Schmutz. Dirt, dust, fingerprints, scratches, and emulsion flaws. They don't add, they detract! But you can't find them on images from the 707/717. If you have ever photographically printed 8 x 10s, you know that it is almost impossible to get the negative COMPLETELY dust free. With a digital image, you won't even have a chance to get the image dirty unless you put the dirt there for effect.

Digital cameras do, however, show a new kind of flaw: digital artifacts. Noise hanging around high contrast details, color banding, non-continuous blends of colors, steppy edges, video-like halos surrounding bright point sources of light, artificial sharpening effects. Maybe even a blown pixel.

The compression direction. These 1:1 images show the difference from the camera capture on the left and the worst-case compression example on the right. Notice how sharp detail breaks down, causing alternating zones of contrast, as contours extend out into surrounding areas. Yet, when you back away from the images far enough, (or shrink them on your monitor to 50%) they look virtually identical. Compression is all about balancing storage space with the ergonomics of human perception.

Fortunately, the camera designers are learning how to minimize or mask these flaws below the threshold of being noticed. Ergonomic factors drive the in-camera

processing of an image and the compression scheme that reduces its size for storage. As you create images, you will be able to do things that optimize your storage space, print size, costs of printing, and appropriateness for later use.

IF YOU PRINT IT, THEY WILL COME

Computer color printers complete the digital photography cycle by producing the hard copy people can handle. Fortunately, printers have been moving toward truly photographic-appearing results, and today you can get surprisingly good color prints from several different kinds of printers, most notably the photo-quality inkjets from Epson, Canon, and HP. New models are appearing almost every month, and the new ones always seem to surpass the older ones.

Inkjet images are produced with micro droplets of liquid color that have nothing to do with the chemistry of photographic printing paper or the dot screen techniques of magazine photos. At the micro level, the dots are scattered pesudo-randomly in what is called a *stochastic* dither. Theoretically, inks and dyes may create a wider range of reflected colors than light-sensitive chemicals can produce. Stunning results can be achieved with printers costing well below $300.00.

Two image panoramic. The rarefied blush of the coming dawn completes with a delicate late-night haze in this panoramic image of the Grand Canal in Venice, Italy. When one wants custom print quality that will hold this level of delicate tonal subtlety, a premium ink-jet printer is the tool of choice for both digital photographers and film photographers.

For example, today I regularly print digital images up to 22 inches long on panoramic stock (8.3 x 23.4 inches) in six colors of ink at 1440 microscopic printing dots per inch. This particular printer is an Epson EX, 1998 technology, yet it is still running strong and making lovely images. (New models capable of page size photorealistic images cost as little as $99US.) Magenta, cyan, yellow, and black inks are joined by two extra colors, light magenta and light cyan, to produce greater subtlety. Total cost: around $2.50 for each *panoramic* print including ink and paper. For the largest images, I make 11 x 17-inch prints on the same printer for around the same cost. Letter-size prints, roughly the equivalent of 8 x 10s, cost only about a dollar or so and can often beat twenty dollar custom prints once you gain the right combination of skills and experience.

The most recent Epson in my long-evolving collection makes 13 x 19 inch (Super B) prints with archival pigment inks that use no less than seven colors, including one that is called “light black.” Silly though that may sound, this printer, the Stylus Photo 2200, also has an optional extra dense *matte* black ink perfectly matched to their heavy matte photo paper. Three Epson printers use this “UltraChrome” ink system but their prices start over twice the cost of other 13-inch wide machines.

Years ago, when I used a chemical darkroom, my color prints maxed out at 11 x 14 inches, and the cost of each of these was in the range of $5.00 for the one-shot chemicals and paper. The process was labor intensive, smelly, wet, and uncertain. A considerable dread factor built up before each printing session. What a bunch of Work. Making a test print for exposure and color was just as hard as making a final print, and a whole day’s effort would result in very few finished images.

PORTABLE DIGITAL DARKROOM

Now I prepare my images in Adobe Photoshop in my laptop Macintosh. It's not a darkroom, just a dimroom, but it never spills anything on me. Here I add a bit of electronic enhancement to the color, contrast, brightness, and/or sharpness and my prints look predictably close to the screen images.

ⓘ Recent portables have "millions of colors" screen images. I can't recommend trying this on a "thousands of colors" viewing screen and a CRT monitor is better than the portable's active-matrix LCD screen. The printer is much more consistent than chemicals ever were, so prints made months apart look like they were made at the same time.

The computer image will never exactly match your experience of the print. The trick is to have them close enough to serve as a basis for relative adjustments. If the print seems to need a tiny bit more red, the computer image should look like it needs a tiny bit more red, too.

THE FIX IS IN

The digital darkroom gives you wide ranging control over brightness, contrast, and finesses of color that would have been incredibly difficult to achieve in chemical photography. With experience, you can look at a picture and decide to add chroma and emphasize the greens while de-emphasizing cyan. But green and cyan are right *next* to each other on the color wheel, yet with Photoshop, they can be manipulated separately.

Changing the exposure and color balance is definable over a wide range. You can stretch the highlights and compress the shadows while preserving the middle tones of an image faster than you can read this sentence. Images on letter-size paper printed at 170+ camera pixels per inch often look better than chemical-print 8 x 10s. To fool everybody all the time, you can use premium glossy print papers, producing photographic results that look and feel like double weight glossy photos.

Actor Rick Fitts took a moment on the set to pose for a still photograph shot with an older Nikon CP 950. A page-size print was in his hands before the makup came off. KinoFlo 3200° K lighting. Your 707—with 250% of the pixel count of the 2-megapixel image here— will be even more detailed.

PHOTOGRAPHY AT THE SPEED OF LIFE

The time from camera to print has shrunk to mere moments in some cases. Click, download, print. On a video shoot, I photographed eight actors playing characters from the year 3000 using the existing cinematic lighting. Each player received a handsome glossy print before they left the building, and each was amazed with the image quality and speed of the experience. I probably spoiled them forever.

I'm still waiting for the system that downloads all your shots wirelessly, spits out the prints, then stuffs them into

an envelope, but I'm sure somebody has it in the works. With these tools, a threshold has been crossed forever.

From here on, it will only get better-faster-chaper. The word "photograph" has changed its meaning. The photo is where—in the computer or on the paper? Access to it is where—the file or the print? Does the term "photographic reproduction" include the inkjet print the photographer considers to be her master reference image?

Our desire to have a print in our hand immediately was initially answered with the Polaroid cameras. Printers are being delivered today that let you take the memory chip out of your camera and plunk it into the printer for immediate results. Polaroid cameras must use film the size of the prints they make, future cameras may have a secure wireless data link to the nearby printer, and as soon as you finish shooting your session, you will go over and take a look at all the 8 x 10 glossies.

PAPER CHASE

The kind of ink you choose to put in your printer should be limited to the inks that won't clog it, and that generally means the inks sold only by the manufacturer. When you bend that rule, you are risking the health of a finely tuned electromechanical-hydraulic system, and when it gums up, don't go running around complaining. A very few places are reliable sources for alternative inks, and the Internet is a good place to find up-to-date information about this. See the Appendix for details.

My own experience has been excellent with the printers, papers, and inks from Epson, Canon, and HP. I've owned five different models of the Epsons and each has been better than the last. Print quality on the latest models has achieved results well above the threshold of "photographic," and speed has increased to the point that the *best* quality color images take only a few minutes to make.

The Red River papers come in a variety of surface treatments, materials, and weights. Their inexpensive sample pack with two sheets of each type is a very handy way for you to discover how they work for your prints.

ⓘ Epson manufactures papers that are ideally suited to their inks, and their own heavy glossy photo paper gives the best results. I recommend spending the extra money (usually about $100 more) and getting a model that will make images at least tabloid size (11 x 17 inches) or larger. Most of your prints will be smaller, but the oohs and aahs that big images generate are worth it. The HP PhotoSmart printers seem to work with a wider variety of paper formulas, including many that don't work nearly as well with the Epson printers and inks.

ⓘ Red River Paper makes a paper that has the double-weight feel of high quality color prints. They even make a very heavy paper with glossy printing surfaces on both sides. Check the Appendix for details.

For daily use, Epson Photo Quality Inkjet paper does well and is available in a variety of sizes. With this paper 8 x 10s will be quite inexpensive, around 50¢.

Inkjet papers, when you think about it, are designed for water-based inks. What other kinds of paper might work well in these devices? Copier paper? No, it is designed to accommodate powdered toner heat-fused onto its surface.

ⓘ Would you believe art paper for watercolors? This can be found in 12 x 18 pads in art supply stores, and the Strathmore Cold Press Watercolor 140 lb. paper works well in straight-path Epson printers. The textured surface accepts the inkjet images with good contrast and subtlety. If you treat your photo to have a watercolor look before printing, the effect is quite charming.

ⓘ The inkjet papers from Red River include a number of similar style papers including woven cloth-like and several "toothy" surfaces. If you have an inkjet printer, their sample pack costs very little and gives you some preliminary experience using all of their paper formulas.

PANORAMASCOPE

ⓘ For large panoramic images you need large panoramic paper. It's available, but why not make some yourself? You could print tiled images and cut them together, but here is a better way.

- Take two sheets and lay them face down on a *clean* flat surface.
- Carefully butt them together, and weigh them down as you tape the seam that will hold them together through the printer. The precise cut of the sheets lets them line up, and weights will hold them in place as a 3/4-inch-wide strip of frosty tape is dropped carefully over the seam.
- Burnish the tape into the back of the paper sheets after laying it in place so the sheets don't separate during printing. The microscopic seam created this way will probably not be very visible in your print, but the result can be stunning.

Until people put their faces almost on top of the picture, they won't see anything but a huge image. A carefully prepared mosaic panoramic of a cityscape or QuickTime VR image can be printed nearly four feet long with this method on Epson printers (some have a 44-inch limit). Other brands of printers may allow longer prints.

PAPER CUTS

Suspend your sense of right and wrong, good and evil, appropriate and inappropriate, and start looking at different kinds of paper for special images. What kind of effect would printing on tracing paper pro-

duce? What if I printed on paper ripped from a yellow pad? An image on butcher paper? An image on a Post-It™? (Stick it onto a larger sheet of paper first, and feed it into the printer with the sticky seam feeding in as a leading edge.)

Wrapping paper and anything fragile like a paper towel could jam in your printer. Experiment, but with caution. Some of these may work. I actually got a cheap hand-towel from a paper towel dispenser to feed through the straight path of an Epson printer. Once.

Paper towels off of a roll don't seem to work at all. Too flexible. Once you start playing with the idea, you will be in uncharted territory and may create completely original results.

If you look for odd papers, don't overlook the special papers that let iron-on transfers roll out of your printer. Images here must be printed backwards with the image flipped left to right. After printing, a white or very light T-shirt (or any compatible cloth) is laid on an ironing board, and the print is placed face-down on the fabric. An iron is used to heat the image, and it transfers to the cloth taking the picture (and the waxy carrier layer) with it. Most people use the process for personal images. You could be the first person on your block to wear an art photograph, a panoramic, a photo montage or a self-portrait with eyes looking up from your chest at your own (real) chin.

It might be a good idea to take a picture of the intended wearer wearing the blank shirt *before* making the print. On this image you can drop a miniature copy of the photo under consideration to preview what it will look like in place. The ultimate version would be a picture of the person wearing the shirt with a picture of him or her on the shirt wearing the shirt with a picture on it, ad infinitum.

You can think of the shirt transfer paper in original ways, too. It really isn't about shirts, after all, it is about cloth printing. The transfer sheet can be used for more than one item. You can put logos, images, graphics, textures, and patterns on the same print, and cut the elements apart before ironing. Turn the entire family into a string of little faces that band around the chest-line of the shirt. Shoot a belly button, and frame the shot with a jagged edge and inner shadow so it looks like it is being seen through a rip at life size. Add the images of exaggerated zippers all over the shirt in impossible places and configurations.

Memory Stick in—images out. PC-card (lower right on the face of the printer) plus menu choices make prints like this easy to generate.

And it doesn't even need to be a shirt. How about a handkerchief with a hand on it? There is a lot of untapped territory here.

INSTA-PRINTERS?

What could be simpler? Just take the card out of the camera, slip it into the slot on the printer, and punch in the size and number of images you want. Some printers actually have this sort of interface, and for their owners, they deliver a steady stream of 4 x 6, 5 x 7, and 8 x 10 prints with just a few button pushes. Look for the super quality HP Photosmart 7350 and Epson 785EPX (pictured) or 875DCS printers with their *borderless* printing on print-size paper. You're gonna love 'em.

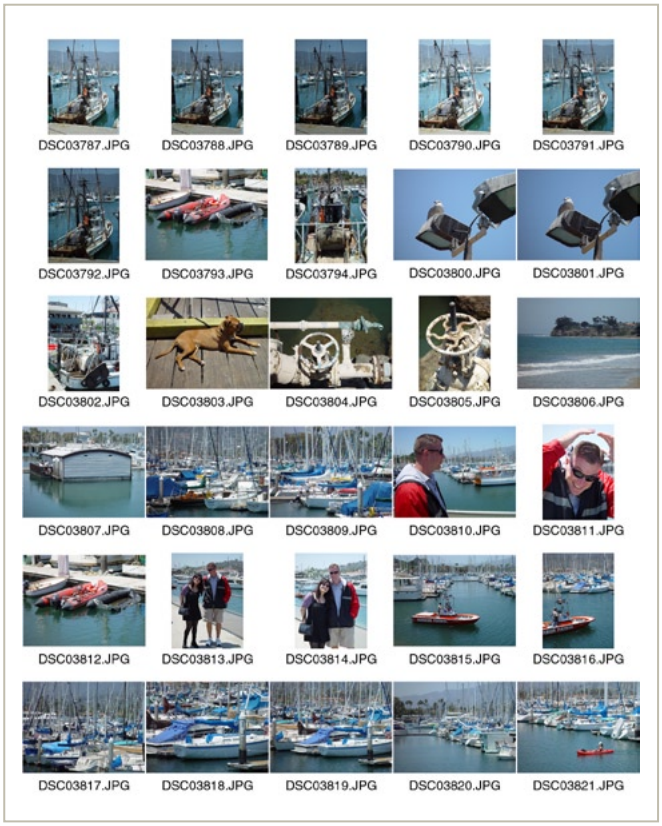
For those of you who might aspire to custom-print quality, the road from lens to print is a little bumpier, but like any drive through the countryside, the views make it all worthwhile. You've already shot the images and sent them into folders in your computer; now it's time to make prints that raise eyebrows.You may never outgrow the insta-printer aspect of the ones that read images from your Memory Stick, but it's comforting to know that the same printers hook up to your computer and achieve custom prints from it, too.

PREPARATION SEPARATION

ⓘ First, you cull the bad images out of your file by looking at them large on your computer monitor. Anything marginal or better should be kept, at least for the time being.

Future generations may come back to these files, scrub through them and wonder why you hung on to so many turkeys, but sometimes a piece of an image is useful.

ⓘ You might want to start a separate collection of seconds. Everybody produces a lot of junk. It's how we get to the good parts. Rodin, Picasso, Congress—all have produced garbage they later retracted, why should you be any different?



ⓘ Once you have a folder full of images that you wish to keep, you can use Photoshop's handy multi-print feature to create a quick reference page. It is found under *File* > *Automate* > *Contact Sheet II* in Photoshop 6 & 7, and it gathers the images, sizes and spaces them according to your choices, prints them out in any quantity you wish, and even allows you to save the sheet as an image file. With a little planning, you can make vertical or horizontal sheets.

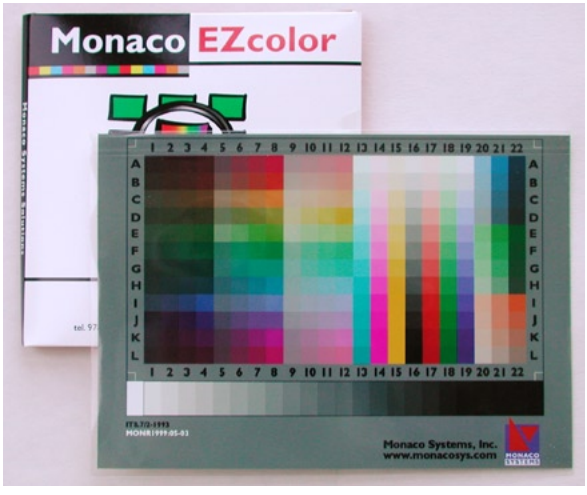
The cropped image (right) gives you an idea of how the page looks with five shots across by six shots deep. Any file name you have given an image will be on the sheet—if you choose. Without names on the sheet, the images can be 30% larger. I rotated vertical images before running this folder through *Contact Sheet II*, but if you don't, you end up with a page of all horizontal printed thumbnails. Just like a film contact sheet.

QC ON THE QT

Now you know the shots you want to see in print. Open them in Photoshop (or your favorite editing program), and let the manipulations begin. Study the image on the computer monitor.

You did calibrate your monitor, didn't you?

This is more important the closer you get to printing. Windows and Macintosh computers have their own special techniques for calibrating the monitor/print results. Some programs, like the Monaco Systems software, can take advantage of a hardware component that lets you set up the monitor to absolute, perfect color and density. Their system connects a special color meter to the screen that coordinates software tests in an automated process which then delivers calibrated results. Other aspects of their system will calibrate scanners and printers as well.



ⓘ With a calibrated monitor, you can predict the behavior of the printer and see the results on screen in high fidelity before touching the print button. If you don't have a sophisticated setup, you can still get into general alignment by printing out some images without altering them in the computer, then using the prints to guide you as you make monitor adjustments that bring its look more in line with the prints.

This is a tail wagging the dog approach, but if it is all you can do for the moment, it will help until a more sophisticated procedure can be applied.

IMAGE CONDITION

The image on your screen will likely be imperfect. No image, on any film negative, transparency, or digital file I've ever experienced, was literally perfect, but the vast majority of them were filled with opportunity. My tastes and your tastes aren't the same. Nor are our retinas, our aesthetic sensibilities, or our fondness for contrast. That's why each of us would make a print differently. It's our chance for self-expression.

ⓘ What does that image look like to you *after* you stare at it for thirty seconds? Is it too bright or dim? Are the colors the best imaginable? Is anything pulling your attention to the wrong part of the shot?

Now the image manipulation tools you learned in Chapter 3 will find their place in your work. Careful testing with Photoshop's *Levels, Curves, Hue and Saturation, Variations, Color Balance*, and cropping tools will allow you to chop, dice, and renovate the image to taste.

ⓘ If you are uncertain as to how the image will hit the page, make a test print. Fortunately, a software plug-in for Photoshop called, appropriately enough, Test Strip, will take you right to the point of being able to judge results in one fast, easy step. The program is extremely flexible. It lets you home-in on color and density adjustments by very broad or fine degrees, and with every print you make, you will be learning more and more about the behavior of color on paper from your printer and how it differs from color on your computer monitor. Every combination behaves differently.

Test Strip prints out your image as horizontal strips, vertical strips, or multiple reduced variations, each with a specific amount of correction.

ⓘ Once you have a segment or small print version of your shot in hand, that looks right to you and meets your criteria, Test Strip lets you save the image with all the code hooks it takes to print it later with the same improvements. Your original is *not* altered, and you can print it differently later if you wish, but the "master print" qualities of tonality and colorimetry are there for you, preserved for the future.

In this series of images we can see the steps of preparation for printing that is typical for the custom-print look your camera and printer can achieve.

The original is at the top. It's a bit underexposed and was shot with the camera set to Low Sharpening. The middle image shows basic Photoshop *Levels* adjustment that brought the white point down and moved the gamma to about 1.1. Because the original was too soft, an application of *Unsharp Mask* with a radius of 0.25 at an intensity of 220 with a threshold of 0 brought up eyelashes and fine detail. Due to the *Levels* adjustment, some chroma was compromised, but here it has been brought back +10%.

The bottom image was first *Unsharp Mask*ed at a radius of 60 pixels using an intensity of 14, then burned and dodged to bring out subtle things like

the defining line of his right shoulder, hair detail, eye values, and lowering the glare on the back of his hand.

THE ARTFUL DODGER

Photos prepared in a darkroom are produced entirely with physical manipulations of time, light and chemistry. Photos prepared in the digital dimroom are not physical but are very precise. The same sorts of tools appear in both, and Photoshop gives you the physical touch with its *Burn* and *Dodge* tools. You met them in Chapter 3, now it's time to play for keeps.

Dodging a film negative involves holding back enlarger light in some area, and that lightens the area. Its icon is a paddle. Just like the darkroom tool that does the same thing except in Photoshop you can see the effect instantly, and if you don't like what you see, you can undo it. If you dodge a number of areas with a series of gestures, you can back up several steps at once using the History palette.

Burning does the opposite. Here, one adds light, thus darkening the local area of the print. Photoshop lets you attack the highlights, midtones, or shadows of the image with either command for control you could never get in the chemical darkroom. In the example at the right, the excessive glare on the back of his hand has been *slightly* reduced by burning.

These tools are so much fun that you will likely get lost for a whole Saturday afternoon just playing with them while filling your mind with experience and ahas.

But wait, there's more.

Adjacent to these controls is another one that looks like a hand-size sponge. This control lets you do a different type of burn and dodge; saturating and desaturating. With this tool you can heighten the color here and drain it there.

CROP CIRCLES

Cropping the image can be done before or after color and tonal adjustments, it's up to you. Sometimes, the very core of the composition of an image changes due to these adjustments, so waiting until after they have been revealed has its benefits. But simple cropping is more flexible these days. No longer need it be simply trimming the edges of the picture, it becomes an opportunity to apply a more advanced concept: print framing. Not the physical ones, the technique ones.

One of the most basic framing techniques is to fade the edge of the image. Photoshop offers several ways to do this. Each surrounds the picture with a feathered edge that transitions from the image to white or another selected color.

A simple way to do this in Photoshop is to create a selection rectangle around your image on a layer over the shot. Feather the selection with an appropriate number of pixels, then invert the selection. Now the area outside the image is chosen. Hit the Delete key in combination with the Command key (Mac) or Control key (windows), and this surrounding area fills with whatever the current background color is. And it can be anything you want.

It doesn't end with selection rectangles, either. Circles, ovals, irregular shapes—they all work.

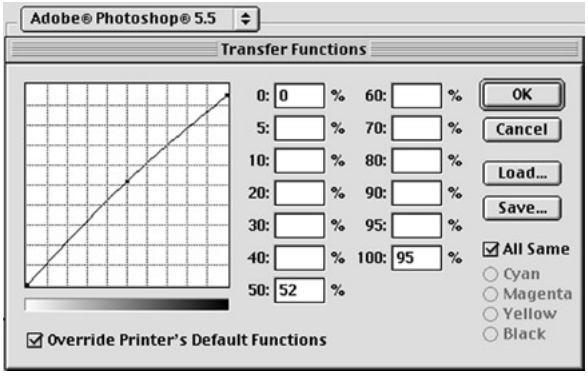
Frames can be purchased on CD from collections sold by Auto F/X with Photo/Graphic Edges, Extensis Photoframe, and others. These generally are more artistic and have more clever looks and interesting possibilities than a simple blend, but you can make complex frames yourself, too.

One of my own original favorites is included on the CD. It simulates a matte board that has been bevel cut, readying it for a 5 x 7 print. It's the one seen at the bottom of page 8-1. You can place it on a layer over your target image and resize it, change its color, and print it out with your image inside as an 8 x 10 page. A nice picture frame would be an appropriate finish. From about two feet back, almost nobody will notice that the matte board bevel cut is a photographic effect.

ⓘ Check out the new iNovaFX film and stamp frame borders on page 10-14.

TRANSFER FUNCTIONS

You may notice, after a few prints that the darkest parts of the picture aren't "open," and this means the printed image reaches black before all the darkest detail has been revealed. Some printers do this without provocation, but Photoshop has a tool that will work around the effect. It's called *Transfer Functions*, and you will find it under *File > Page Setup* or attached to the *Print* command (in PS 7). By simply moving the dark end of the *Transfer Functions* line from 100% to 95-92%, additional instructions flow to the printer ordering it to not print so darned dark. It works well but has to be done for each print. Of course, each print needs to be set up in this dialog box anyhow, and a few extra seconds to improve the shot are worth it. Notice that a *Transfer Functions* line can be complex in the same way that a *Curves* control adjustment presents a complex graphic change in the tonal range of an image. Your favorite *Transfer Functions* results can be *Save*d and re-*Load*ed.



Beyond this basic use of this control lies a deeper world of printer manipulation that can be used to perfect the output of Photoshop images in profound, but subtle ways. For the very advanced print tips, check the Appendix or DigitalSecrets.net website for links.

PROTECTION MONEY

Inkjet images are made with water-based inks sprayed onto paper. Water droplets falling on a print can be fatal. Some paper and ink combinations work well to avoid problems like this, but all of them will smear, blend, or smudge unless protected. Mounted prints behind glass will last for years, depending on the paper/ink combination's archival qualities. Images displayed next to a soda fountain need definite help. Waterproofing techniques used by fine artists to protect watercolor paintings work here as well, for the same reasons.

Krylon Crystal Clear Acrylic sprays, fixatif, lamination, varnish—each has its advantages and drawbacks. Sprays that permeate the upper surface of the paper will usually change the color of the printed sheet. Often this actually enhances the contrast of the print. But, as they dry, the surface could shrink causing the paper to curl. Thick papers and prints that are already bonded to a stiff backing can avoid some of these symptoms, but you will need to run tests before settling into the right printer/ink/mounting technique/protective spray combination.

Krylon, long regarded as an appropriate source for protective spray materials used with artwork, has several glossy, satin, and matte surface products. The UV-Clear spray, Item #1305, is particularly good for photographs.

Lamination has advantages. It generally makes the print look more like a print on glossy stock, and the surrounding laminate curls the page in both directions equally, resulting in a flat sheet. The laminator and materials aren't cheap. Some of the best photo quality printers cost less than lamination presses. On the plus side, laminated prints are extremely durable and well protected. You can make very fine looking prints that are almost bullet proof. I've used laminated prints as photo place mats.

The Ibico laminator pictured here heats as it presses, fusing the lamination material surrounding the print. The one trouble heat can cause arises from moisture in the print or its ink. That can create bubbles. As long as the page is dry, a heat lamination is the best. But the laminator device is not inexpensive.

Heat-free laminators from other manufacturers such as the Cool Laminator system from Brother® are less expensive and also give good results with their own pressure-sensitive materials.

Chapter 8

Special Effects
Beyond Photography

Special effects seem so "ordinary" these days. Every time you open an image for manipulation, the boundary dividing normal from special can be crossed. Digital photography is the special effects medium, so here's how to get your digital FX feet wet.

George Lucas considers the digital medium to be vastly superior to film, so what does he do? What any sane producer these days should do. He makes films digitally. The level of special effects production in the digital arena is limitless, and by starting with a digital image right from the camera, his *Star Wars* films are now digital from lens to screen.

The problems for motion picture special effects are the same ones for still image special effects, plus the added problems of movement and animation. For chemical film images to enter into this realm they must be digitized into it. Fortunately, the DSC-F707/717 camera does this directly.

ⓘ = InfoBite

Once digitized, exposure, contrast, and color correction are only starting places. They all are mere density management exercises. Digital special effects include the ability to blur, sharpen, distort, morph, tile, overlay, tint, matte, double expose, stack, pixelate, stylize, texture, frame, and combine images. Photoshop and Photoshop Elements will give you the tools to do all this and more.

ⓘ The Photoshop Tryout program on this eBook's CD will help you experience some of the concepts here. If you find that you enjoy transforming pictures into more than they were in the camera, I recommend that you start saving your quarters to acquire the full version of Photoshop.

ⓘ I wonder what's on eBay tonight?

This frame and several others are on the CD.

I'VE BEEN FRAMED

Printing a photo onto a page is fine. Adding a frame around the image signals people that the picture is special. Even a simple drop shadow under your image sets it apart from an ordinary print. A border that looks like a bevel-cut matte board is surprisingly effective. When people notice that the attractive matte board is the *image* of a matte board they will think you are capable indeed. You will hear this a lot:

"Can you do that with *my* picture?"

Printing is a form of expression, and there are a number of border-generating techniques available as plug-ins, shape modifiers, and standard pre-generated edge and frame images made for this, plus an infinite number you can dream up on your own.

ⓘ Several unique Photoshop frames are on the CD. To inspire.

Colorizing a black and white image has been a special effect since the dawn of photographs. Today it is an interesting way to make images refreshing while testing your basic kindergarten skills of coloring within the lines. With a paintbrush loaded with color, you can paint over a black and white image using the

blending mode called, appropriately enough, *Color*. Anything under the brush becomes colorized without being painted over. Conveniently, only middle tones take on the color, so highlights and shadows are preserved. Use a low opacity (about 10~15%) to build up color slowly.

Photoshop also allows you to de-colorize selectively (*Desaturation* tool), and you can easily generate the image of a full-color person in a completely black and white world.

Turning an image into a retro version of photography by sepia toning or fading back the color to a 1950s look will allow you to fill your walls with neo-history. Remember that old cat we used to have? Here's an old sepia print of him made way back, oh, I dunno, maybe two months ago.

ⓘ A few moments playing with the *Colorize* controls in Photoshop's *Hue and Saturation* tool will make you expert at achieving sepia (and other color) variations.

BLUR FOR SHARPNESS

Many images look more effective when the background is slightly out of focus. The Japanese photo word for this is *bokeh*. It doesn't mean flowers. Bokeh happens naturally with wide apertures and long lenses or with modest apertures in extreme close-ups. It doesn't happen much in photography of people-size objects. With about ten minutes' work you can change all this.

The person in this shot was goofing with me over lunch. Can you tell? The background was blown out of focus days later by isolating the silhouette of the guy with Photoshop's *Quick Mask* feature, followed by a *Gaussian Blur* filter. The framing treatment locks in the whimsey.

With a 35mm camera you can shoot an image while zooming the lens for a streaking effect, but the zoom lens control on the 707/717 is locked-out during exposure. Yet here is a shot of a toy with a much better controlled version of that sort of effect. The image was copied into

a new layer and "zoomed" with Photoshop's *Radial Blur* filter, then made 66% opaque, allowing the sharper, underlying layer to mix into the shot. Now the image has dynamics and detail in the same frame.

Not all images need to depend on clarity. Blowing away the sharp focus in parts of images creates a form of directed center of interest that tonality, geometry, cropping, and color intensity can't achieve. Selective blur lets you direct the viewer's attention just where you want it to be. Advertising photography uses this technique to direct the emotional content of images and you can, too. It's almost quicker to do than to talk about.

For a directed-focus image, Lasso-select an area around the subject you wish to keep in focus, invert the selection and *Feather* the selection edge 10, 20, or more pixels. This selects the balance of the image and makes the edge of your selection notably soft.

Blow this area a bit out of focus. *Gaussian Blur* at a radius of three pixels should do it. Now select a wider area farther away from the subject and repeat the process with increasing blur.

After three to five iterations, the blown-focus effect should look smooth and increase with distance from the sharp area. Here's a DeLorean shot that only took two minutes to treat. With this treatment a surreal quality enters the picture. It would be hard to distinguish it from a miniature or model instead of the real full-size car that it is.

ⓘ Other effects that destroy clarity can add mega-doses of interest. The entire filter set within Photoshop that is labeled *Artistic* is good for hours and hours of investigation and play. Try to establish this habit: open an image and immediately save it under a new name (to avoid accidentally saving over the original), then copy it to a new layer. Perform the filter operation on this new layer. Not only does this let you get back to your unaltered original when an experiment goes sour, it lets you immediately use the upper layer in combination with the original so you can try out lots of overlay blending modes such as *Screen, Soft* and *Hard Light, Color Dodge* and *Exclusion*.

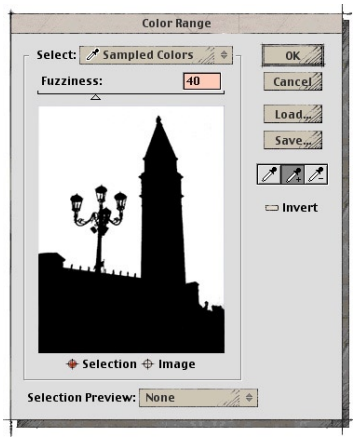
ⓘ You can erase soft holes in a treated upper layer allowing untreated areas of the original to appear in select parts of the image. *Tool Palette* > *Eraser* > (any soft brush).

DOUBLE VISION

A very large part of film special effects depend on layering images over other images. The general process here is achieving a matte, or selectively transparent means to isolate one part of a photo, then place another image into or around the matte. Blue sky is an especially good matte target. If you have an image of a relatively simple object against a nice rich blue sky, you can start playing with this idea right away. See the CD for my shot of the Las Vegas Venetian Hotel tower if another shot isn't handy. (This image has been tweaked to make it especially easy to work with the sky.)

In Photoshop, use the *Select* > *Color Range* window. It presents you with a miniature of the photo and an array of tools and adjustments. Set the *Fuzziness* control to about 40, and use the eyedropper that has a + symbol next to it. Now anything you touch will be added to the selection of colors making the matte. Often, the image looks like something was selected before you opened it, so use the unmarked eyedropper to touch into the sky of your shot, and that should get things started.

With the *Eyedropper +* tool, run the tip over the blues of the sky. On the Venetian shot this easily can be done up through the range of blues on the right side of the tower. The goal is to achieve an image that looks very much like this silhouette.



Once this effect is approximated, a whole world of possibilities opens up. The sky alone is selected, and anything can be pasted into it using the *Edit* > *Paste Into* command.

A new sky can be substituted, the original sky can be lightened or darkened. Forget your polarizer? Never mind, you can darken the sky later (lower left). Or add other sky images until you find one that suits your subject (lower right).

If you get a halo around a subject, you may have to retouch the boundaries of the matte using the stamp tool. Since halos are generally lighter, consider using the *Darken* blending mode with a small brush. Now anything being picked up by the stamp will only darken the lighter part of the matte boundary, and detail won't be covered over.

TELL A FRIEND OR TELEPHOTO

Telephoto images are an in-camera special effect. Our eyes don't see that way, and images from long lenses rarely feel like the views we get from binoculars.

Shooting with 2X digital tele while making image files of SXGA or VGA (1280 x 960 or 640 x 480) creates an extended telephoto effect. What was a 190mm equivalent now magnifies the world like a 380mm lens on a 35mm film camera.

Retouching can bring an image into a different sort of focus. The top image was the original, but no passing gondola was available to add a human element. Months later a different image was added to lend the missing touch of life.

ⓘ The large diameter objective lens of the DSC-F707/717 makes it unsuitable for use looking *through* most telescopic or microscopic instruments. After all, the sealed lens makes the camera into a giant eye that must be held up to an *eyepiece*. Expect vignetting.

ⓘ High shutter speeds are necessary for sharp tele images. The picture above was made through a 42mm eyepiece on an 8-inch Meade LX200 telescope at 1/250 sec. The trees are over two miles away.

ⓘ Large diameter tele converters are rare. The Olympus TCON-14 and TCON300 work with varying degrees of success.

TWIN PEEKS

Special effects fall into two basic camps: Those done to disguise their presence and those done to be strikingly obvious.

Erasing a shadow, covering a flaw, smoothing a texture, and covering a thumb that made its way into the side of your shot are examples of disguised special effects. They simply will never be noticed or appreciated by the viewer. Included in this category are the image manipulations most people call *retouching*.

One of the most useful skills you can develop in Photoshop is the art of making masks. Like the previous sky example, this one, left, could largely be done by selecting the brighter colors of the exterior area, but fine work was needed to clean up the arch and mask out the nearby bright areas.

Creating artistic textures, combining matted elements, and manipulating isolated elements can be visually obvious techniques that strengthen images. All three images from three different digital cameras share this quality.

A popular technique (top) is to stack blurred and sharp images together and combine their percentage of representation. It creates an effect similar to using a fog filter on the enlarger lens during a portion of the exposure when printing from negatives. Contrast manipulation of the sky and shirt were emphasized to create slashes of heavy color intended to pull your eye around the shot.

The motorcycle was masked while the back- and foreground were blurred (right). Large areas of isolated focus like this are usually only achievable with large format view cameras.

Below, five shots were layered in alignment and blended by *erasing* image material on the right side of each shot with a soft brush that followed the contour of the figure. Everything to the right of that layer was then erased completely allowing the next lower layer(s) to appear. The originals were all hand-held.

Retouching by using the *Stamp* tool removed the images of redundant silverware, replacing it with plausible table place mat texture.

Original without any treatment.

iAngledStrokesPainting

iCanvasPainting

iColorDream

iContrast(UM)2

iColorPencilSketch

iFilmGrain2

iPlasticWrap

iPoster

iSponge

SPECIAL EFFECTS À LA MODE

Photoshop is, among other things, Special Effects City. Its filter complement is extensive. Perhaps dauntingly wide in scope. Newcomers to Photoshop can be intimidated by the full range of filters and effects that are available. Never fear, iNovaFX has come to the rescue. The iNovaFX Photoshop Actions include nearly a hundred iPS variations for your computer. These must be used with Photoshop 6.0 or above. They load into the *Actions* palette, not the *Plug Ins* folder.

These filters have only one purpose, to widen your ability to use the various artistic effects on your photos using Photoshop's own filters. Many are merely our tested and helpful settings for various Photoshop plug-in filters. Those are already included with the full version of the program. They may help you avoid a lot of trial and error and generally produce good results with a variety of original images. Some have several degrees of variation representing a light, modest, or strong version of the filter. The names on each of these includes the name of the Photoshop filter being employed marked with a leading lowercase "i."

All of the iNovaFX versions feature plug-in filters that have a number of variables. Once you see what choices the iVersion has produced, you can use the History Palette to jump back to the original state of your image so you can play with new settings for that filter. The you-versions.

Some of the iNovaFX iPS actions are more complex. These produce orchestrated adjustments that employ not just filters, but a fuller array of Photoshop adjustments, to achieve a particular effect. All of the images on this and the next page were made by applying some of these iPS actions to the same image. The label on each steers you to the action in question.

iWaterColor2

iAccentedEdges

iSpatter

iTwist-90

iGlassRipple

iRipple

iZigOut

iExtrude3

iBasReliefColorReverse

iCraquelure2

iContéCrayonColor

iChalkNCharcoalColor

iPhotoCopyColor

iEmbossColor

iChromeChroma

Chapter 9

Vexing FAQs

Frequently asked questions are frequent because digital photography often is not intuitive and doesn't fit prior experiences. When that happens, it's good to have a peek at some of the underlying principles. Here is a bit of help.

Getting stuck on a basic idea can be frustrating. Anything fundamental that hangs you up can be embarrassing if the solution turns out to be, "First, plug it *in*," but in all-electronic, digital photography, things pop up that aren't in our habit structures yet. When that happens, the forums on the Internet are the first level of help, because a whole community of interested people at all levels of discovery and expertise hang out there and will willingly answer your questions.

Better yet, go to the Internet and open up http://www.itssony.com/ for a list of recent issues that have cropped up. Take comfort in knowing that you're not the only one who ever raised these questions. Here are a few of the most frequent.

ⓘ = InfoBite

WHAT'S THE BEST WAY TO FOCUS THE *VERY* CLOSEST?

There isn't one. There are three—Manual, macro and assisted.

The DSC-F707/717 will manually focus to the closest distance the current zoom position can handle. All on-screen notations are in *meters*. Each meter is just a tad over 39 inches and three meters is about ten feet. Full tele focuses to about 1.01 meter. Full wide zoom focuses to 0.02 meter—less than an inch (which is 0.0254 meter). At mid-zoom, the camera easily focuses to 0.12 meter. The field of view here is well inside a business card.

ⓘ Once you are full wide, you do get dramatically closer, but the lens is so very close to the subject that the lens itself blocks most of the light. Reflective subects will appear somewhat rim-lit.

In auto-focus, the macro focus option shows in the Finder and LCD screen as the flower icon. You switch this setting into existence with a right-side flick of the Control button.

ⓘ Macro auto focus takes an extra second to search closer to the lens than the normal auto focus search. It is trying to find something nearby, because you said you wanted things that way.

An ancient Roman denarius is about the size of a dime. The 707 can get a bit closer than this, but the zoom lens permits the flexibility of choosing your angle and distance.

At its closest, the 707 or 717 will focus on objects just over a thumb's width away from the glass. It's hard to get light into a space that close, and the lens will probably shadow the subject. You can do several things to improve the situation. Back up, or move the camera out of the light, or both.

By pulling slightly back from your tiny subject, you allow significantly more light to make it into the scene. If you are blocking direct sunlight, orbit the camera around your subject until light can make it in.

At the manual setting of 0.02 meters (20mm) the subject is about 3/4-inch from the lens and under 1.5 inch wide. That's

much closer than you are likely to need very often. At this distance an 8 x 10 print will create an image 6.7 times larger than life!

As you put some distance between the lens and subject, you can compensate with the zoom. Manual focus at 0.10 meter (about four inches) and you can park the lens in the middle of the zoom range and still maintain focus. Now you are so far back from the subject that light control is much easier. But the field of view is still a very macro 2.25 inches wide (58mm).

Assisted focus has you intervening with a focus target—a small swatch of printed paper will do—that is held in the shot during shutter half-press, then is withdrawn for the shot. It avoids macro-level stolen focus.

Small leaves, lens prefocused at 0.10 meter in mid-zoom. The camera was moved closer / farther to find the point of focus.

ⓘ One problem with full-wide macro shooting comes from barrel distortion. When you shoot at mid-zoom, this disappears.

ARE SOME MEMORY STICKS BETTER? CHEAPER? WILL THEY LAST?

Memory Sticks are not all exactly alike. But most are close.

Since Sony invented and licesnses Memory Stick manufacure to Lexar, SanDisk and others, they have tight control over the behavior of the contents and attributes of these media components.

They all behave the same in your camera, but the prices are different from different manufacturers. When shooting with the 707/717 for long, interesting days, it is not unusual to fill up more than one 128 megabyte card, even when shooting at the memory-saving settings of Normal compression and 2048x1536 pixel images.

The price of Memory Sticks is constantly falling, and Sticks from non-Sony sources are just as good as the Sony product.

Some people are concerned that Memory Sticks might have a limited service life. In strict, technical terms this is true. But you would have to go out of your way by an impractically wide margin to come close to wearing one out.

ⓘ Each memory cell in the card can be rewritten in the neighborhood of 300,000 times. (That's right, once a day for the better part of a thousand years.) But if you really get busy, you could wear the card out in about five years if you simply filled it up 60,000 times a day. Kidding, but true.

ⓘ Some memory sticks are made for other computer and data applications. These have the designation *Magic Gate Memory Sticks* and include encrypted copyright protection circuitry. These are NOT the ones you need for your camera. But they will work.

CAN I USE OTHER FLASHES?

The DSC-F707 is a camera with two flash options; the on-camera flash and the Sony HVL-F1000 external flash. Promaster offers the 5750 flash with Sony ACC base that connects, too. The DSC-F717's hot shoe allows it to use *most* shoe-triggered flashes.

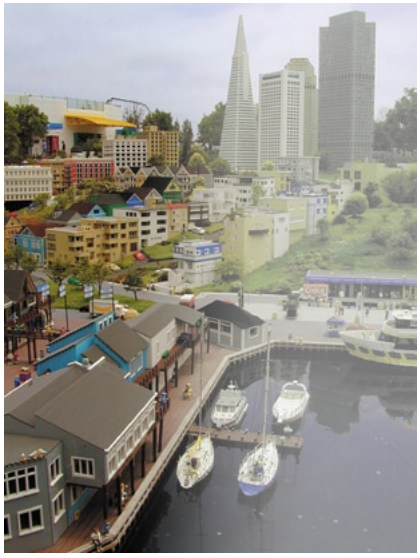
The internal flash unit will pop up automatically when lighting warrants it, and the flash system uses a particularly good double flash technique that produces some of the best-looking on-camera flash shots in all of digital photography. It fires a test flash, reads the result using the image chip, makes an informed decision about the exposure, then fires the flash *again* to make the shot in about 1/4 second. The double-flash also reduces red-eye somewhat, although you can set the flash to use a more complex anti-red-eye flash sequence. *Set Up > Camera > Redeye Reduction > On.*

The external Sony HVL-F1000 flash unit is a good option. It plugs into the ACC socket at the back of the lens barrel and intimately connects to the camera's internal systems. It does NOT use a double flash technique. It uses a forward-looking light sensor mounted just above the Sony logo on the front of its base.

The top of the Sony HVL-F1000 pivots upward, facilitating bounce flash at several angles, 0° straight out, 45°, 60°, 75° and 90° straight up. A retracting diffuser drops over the flash tube for extra wide coverage.

Facing straight forward, it will reach out over 30 feet at ISO 100, but at ISO 400, it will light up the neighborhood. You could use this flash to illuminate football game action in mid-field if you were shooting from the sidelines. Bright? Yow! And its high physical position eliminates virtually all forms of red-eye.

With the external flash you can trigger inexpensive slave flash units or cover the flash tube with some black slide film, turning it into an infrared light flash transmitter for all-slave flash photography. Some visible light will come through the slide film, but not enough to provide illumination to the shot. Virtually all of the IR light will pass through, and that will trigger all the slave units.



WILL MY PRINTS FADE?

Sure they will. In time. But it might be measured in decades, centuries, or eons. Recent ink-jet printers measure print life in decades. Some up to 100 years.

Light is the great killer of the dyes and pigments in photo prints. Ultraviolet light is particularly effective in promoting fading.

ⓘ Keep the UV off the print, and even the least fade-resistant inks may last for years.

Hollywood films have a similar problem. Old color movies are fading. Several organizations are spending megadollars to preserve them, and their first defense is the one already built into your camera; digitization. Once the image exists as digital data, it will never fade. Of course, this puts the burden on you to effectively preserve it. Load data onto a CD-R or a DVD-R disk, and it's very safe as

long as the disk isn't scratched, melted, or used as a hockey puck.

ⓘ For critical image collections, make more than one disk, and store them in different places. Note that CD-R materials are somewhat light-sensitive. A laser light "burned" them. So store them in dim areas.

DO CONVERTER LENSES LOSE LIGHT?

Some do, some don't. The Sony VCL-MHG07 wide converter loses only a few percent of light and does not require a change of exposure.

Other converter lenses mounted over the lens may reduce the exposure if the physics of their design doesn't let them gather as much light as the camera lens does.

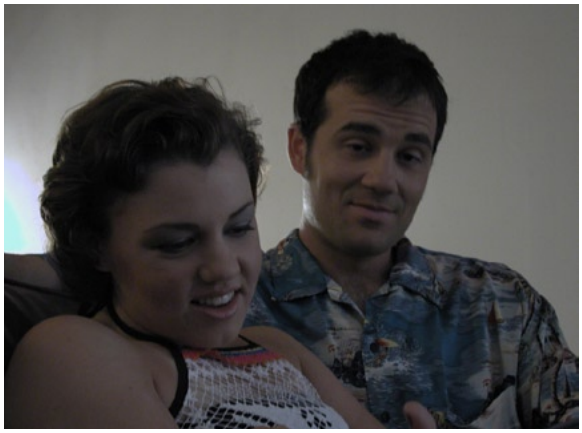
ⓘ You can test this by locking the exposure and shooting a scene—preferably something simple like an evenly lit blank wall—with and without the converter in question.

ⓘ Examine the results in Photoshop or Photoshop Elements. Each has the ability to run the cursor over image details and see an instant analysis of pixel values. You can open an "Info" window and select *Info* > *Palette Options* > *First Color Readout* > *HSB* Color to view the analysis in terms of Hue, Saturation and Brightness. Brightness will tell you immediately if the exposure is significantly different between test shots.

CAN I SHOOT AT HIGHER "FILM" SPEEDS?

Would you like ISO 800? ISO 1600? No problem. ISO 3200? That's a little more difficult.

One of the great qualities of the 707/717's image chip is its useful depth of shadow detail. As the sensitivity is boosted—and this means literally amplified the way you would turn up a quiet passage of music—the only place that extra brightness comes from is the shadow detail of the lower ISO image.



This would *never* happen to your images but if you accidentally shot a picture way underexposed, how would you fix it?

ⓘ As ISO rises, so does grain, noise, and color uncertainty. Just like it does in high speed film.

Fortunately, both the 707 and 717 can achieve ISO numbers upwards of 4+ times its top marked number. There will be grain and loss of quality, but the image will be perhaps even artistic.

Shooting at high ISO is easy. Just tell the camera to underexpose one or two stops. On the EV+/- function set the camera to expose at EV-1.0 while shooting at ISO 400, and the exposures you make will be exactly the same ones you would make for ISO 800. EV-2.0 will effectively produces exposures equivalent to ISO 1600. On the 717, ISO 800 at EV-2 is equivalent to ISO 3200.

ⓘ The picture on the camera monitor may be dark to the point of unreadable, but the appropriate ISO boosting iNovaFX action in Photoshop will bring the picture back to nearer where you wanted. The only thing you lose is the ability to judge the image in the camera.

Pushing the limits of ISO boost, the image was recovered with the iNovaFX ISO2Taste action.

A special action called iISO2Taste is included for experimentation with even higher realms of ISO boost.

See Chapter 10's action operation instructions for details.

I rather like the grainy, crushed colors of ISO boosted images. They have a fairly painterly quality, and as with super speed color films, the character of the image can be abstract and artistic. That's what I tell myself when there is no other choice.

ⓘ Shooting in B&W (*Camera Menu* > *Sp Effects* > *Sepia*) may be preferred once you start into the higher ISO realms. The iNovaFX actions work only on RGB files, but the camera saves monochrome images in this format anyhow.

CAN I MAKE PHOTO PRINTS?

Several on-line photographic digital print services have appeared to address exactly this question, so the answer is, yes!

Ofoto, ShutterFly, DotPhoto. Print Room, and others all want you to send your images to them over the Internet, so they can make photo-paper prints and mail them back to you. The cost of prints is quite reasonable, and some will print a sample number of your images free, just to show you how good they make them. Not as fast as local photo finishers, they do deliver the pictures to your door, and the images look just like photos from film cameras. A few, like EZPrints, make crowd-pleasing enlargements as big as 20 x 30 inches (at only about $20 US). I feel a poster coming on.

A bunch of prints from Ofoto and Shutterfly. While they're not the level of custom tweak you can make for yourself and print individually, they're extremely good and often better than the one-hour photolabs results with film.

All over the land, digital photography is becoming a normal part of your local photo finisher's service mix. Fuji makes a super-quality digital printer that is appearing in many photo finisher's stores. Look for these *Frontier* prints. Sony also wants part of this action, and kiosk-like Sony *PictureStations* are showing up in many retail spaces. Digital is taking over.

CAN I MAKE *GIANT* PRINTS AT HOME?

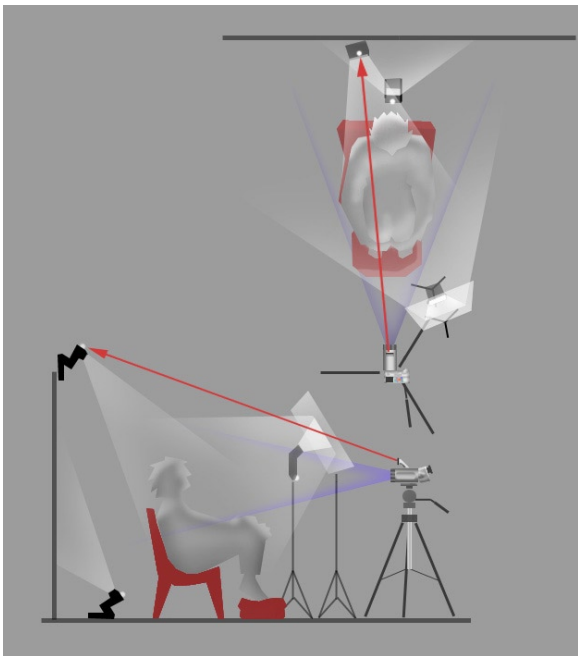
If you have a large format ink-jet printer, you can make prints up to the maximum size paper that it will take. Letter-page printers max out at 8.5 inches wide.

Look over the wider printers from Epson, HP and Canon. Epson's 13-inch wide models are especially good looking these days, and they have recently introduced a line of professional printers with 13-inch (Stylus Photo 2200, a.k.a. 2100 in Europe), 24-inch (Pro 7600) and 44-inch (Pro 9600) paper widths. These are very expensive, ($700, $3,300 and $6,600 respectively US) but they make fabulous, completely photographic (2880 x 1440 dpi) large prints that use archival inks and paper. But don't fret; Epson also makes wide printers in the under $400 price range, too.

You will hear the term *giclée* prints (zhee-clay, it's French for "spurt") and this refers to high-quality ink-jet prints of superior longevity. Digital photo-finishers are awakening to the growing desire for large digital prints, and your 707/717 will produce exceptionally good giclée large images.

WHAT'S THE BEST WAY TO LIGHT—

Lighting is a subject worthy of a whole book. I've picked a few examples here that are widely different, and each brings up a consideration that shows an unusual series of problems to be solved.



The basic three light system using the camera as a wireless IR trigger. The main light here is bounced for softness while the backlight is direct. Set lights or rim lights can be soft or direct as needed.

—A PORTRAIT?

People look good with key light from the front, above head high, and slightly to one side, plus back-light that catches their hair, shoulders, cheeks, and contours, plus a little fill to keep the front light from looking too contrasty. People also look best at mild telephoto settings. Mid to long zoom settings are called for. All of this is an over-generalization, but it is the basis for finding the framing and light for your subjects. Outdoors the sun can act as a back light, camera or external flash can become the key (main) light, and the sky and surrounding reflected light can act as the fill. When the sun becomes the key light, which is the way too many images are shot, the people often look quite contrasty. Worse, they squint!

Indoors, the diagramed sort of lighting setup (above) is almost formulaic, but it does work. This is a good place to use the IR flash trick with slave flash units. Direct flash is almost always too direct and harsh. If you can, point the key flash at a large chunk of white foam core board, white poster board, or a nearby wall to create a big, soft bounce light. Backlight and rim light from the back and/or sides can be aimed directly about 45° from the rear, giving a crisp edge of light to the head and shoulders of your subject. The picture here used four small inexpensive slave units and one major flash unit, all triggered invisibly with black transparency film subtracting visible light from the primary flash.

ⓘ For a dramatic image, you can use side light and color gels on back and rim lights. Sometimes, eliminating the fill light will enhance a sense of drama by creating unlit, negative space in the image.

In all portraits the background is important. Outdoors it can easily become too detailed and distracting. When you are aware that the blobs of background detail are important to the look of the scene, you can start using them as helpful elements in your shot.

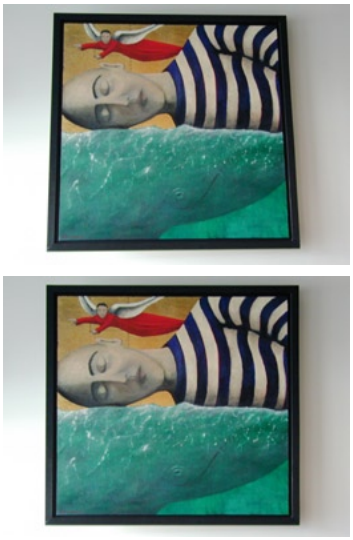
ⓘ The DSC-F707/717 at full tele and wide *f*/2.4 aperture will effectively blur backgrounds behind your subject if the background elements are 10 ft (3m) or more farther away.

Sometimes hand-held in natural light is the only option.

—A ROOM?

All rooms are different. Some need to be shot using ambient light, and this probably means a tripod and longish exposures. Some may look quite good if you bounce a bright flash unit off a side wall or the ceiling above the camera. When windows let in a lot of exterior light, you will need to be aware that interior and exterior light make a warm/cool combination. Perform a manual white balance on a piece of white paper equally illuminated from these opposite sources to help you record the actual colors in the room. With wide zoom or wide convertors, you'll need the iNovaFX barrel distortion correction action to straighten linear features.

Often rooms have an extreme range of contrast. Windows show the outside, and the difference from outside to inside can be easily many more stops than the camera can capture. Your eye, with its 30,000:1 sensitivity, sees things the 550:1 range of the camera simply can't. See the Dynamic Range enhancing technique (Chapter 10) for a method of tripod shooting that achieves a wider dynamic range.



Only one chance to snap this image under available light. Photoshop's Transform tool in Perspective mode rescued it.

—A PAINTING?

Any flat graphic surface can be captured with these cameras. Instant scans. Big objects, like paintings on a wall, are a good example. Photographs in scrapbooks or notes on whiteboards can be captured routinely. For best straight-line results, shoot at mid-zoom. Flat surfaces can glare, so the camera flash is useless much of the time. Sometimes you must use it, however, and Photoshop offers a work around. If you shoot a painting or flat graphic with the camera flash—but do it *at an angle* to avoid reflections—you will have an image of the painting at a perspective angle.

ⓘ Photoshop has a Transform tool that will allow you to correct the perspective and straighten up the image. Many images in a museum, or large permanent wall graphics, would have to be photographed from opportunistic positions. With available light and a skewed point of view, this tool will help.

ⓘ Classic lighting for flat objects uses two symmetrically placed lights, either flash units or incandescent lights, that are along the 45° line extending from the center of the subject on each side. This angle has some flexibility. In cramped quarters, polarization filters can cover the lights and can be rotated to stop the glare before it starts. Another polarizer on the camera will eliminate any residual glare at the edges of your flat subject.

The farther the lights are from the subject, the lower your chances of introducing glare to flat surfaces.

—AN AQUARIUM?

Here the questions are how the flash affects the fish, how to control glare from the glass on the camera side of the tank, focusing on moving fish in dim light, and how the tank's structure may create shadows that can't be seen until the flash goes off.

ⓘ With halogen or fluorescent lights, some problems disappear because you can see the lighting coming together. But with flash

you will have to learn several things through a series of test exposures. The good news: test exposures are free.

The fish: try a flash out on them. They probably won't dart around too much or they'll probably get used to it fairly quickly if they do. They're used to glints of sunlight from the surface. Wrangling them into position might be a tougher problem.

ⓘ Have a laser pointer handy. They'll follow the spot around like it's an egg or food.

The glare: Make sure the camera itself isn't being illuminated by external lighting units, thus causing its own reflection. Control the light, and keep it in the aquarium. Don't use the camera flash at all, not even as an IR trigger; any light straight out from the camera will bounce off the glass into your lens and ruin the shot. External flash units, incandescent, or fluorescent lights would be your best bets. If you can, try to pump as much light directly down into the tank from the top with all the upper top-of-tank equipment cleared away.

ⓘ The option of lighting this at 45° angles from the front is not particularly good because the seams at the edge of the front window will now cast shadows into the fish. Side lighting and top lighting will be better approaches.

WHAT'S WITH A POLARIZER?

Polarizers are filters that look gray to the eye but have the extra physical attribute of being able to darken light that is polarized at a 90° angle different from the filter's own angle. Light becomes polarized as it glints off of water, polished surfaces, glass, leaves, graphics, ceramics—anything that can create glare except for one thing: metal surfaces. Blue sky also polarizes light, and the portion of the sky that is 90° from the sun is quite responsive to a polarizing filter. Polarized sunglasses may be tinted, but polarizing filters are neutral gray and tend to make colors look more vivid when the glossy reflection from surfaces is canceled.

The way you use it is straightforward. You must be able to see the Finder or LCD well, otherwise the effect may be lost to your eye. The filter is attached normally and rotated in its free-wheeling mount. Glare reflections and sky color will brighten and dim as you turn the filter. Turn it to where the image of the sky looks darkest, and you will have the effect in your shot. If you are shooting into water at a steep angle, about 45°, you can erase the reflection of the sky to a marked degree by turning the filter until the water looks clearer.

Ah, the drama of a polarizing filter! Wait a minute. This isn't a polarizing filter at work. It's another one of the iNovaFX actions from the iPolarizeSky.atn folder.

ⓘ "Circular polarizers" are filters that have a special material on the camera side of the filter called a *retarder plate*. It tumbles the emerging photons in a way that can't be seen with your eye, but which is helpful inside the camera. Two linear polarizers can be crossed to extinguish the light flowing through them, but two circular polarizers behave differently. In fact, a single linear polarizer held up to a mirror will look merely gray to your eye as you look *through it* at its own reflection, but a circular polarizer will look gray only when observed from *behind*. Turn the filter *over* and the reflection will darken the way two crossed regular polarizing filters do. Amazing but true.

A good coated filter, like the lower one, will show a glare reflection that is darker than the reflection from an uncoated surface, the upper one. The reflection is slightly darker because more light is passing *through* it instead of being bounced off the glass. Both test filters here are backed by neutral dark filters so only the reflection shows prominently.

DO I NEED A UV FILTER?

A UV, Haze and/or Skylight filter is a nearly clear pane of ultraviolet light-absorbing glass that prevents ultraviolet light or slightly blue haze from contaminating the image. That's nice, but adding extra layers of glass increases reflections. An additional feature: protection. If you are in an environment that throws sand, tree limbs, dog noses, and unexpected fingers towards your camera, a UV, Haze or Skylight filter is cheap protection for your camera's lens.

ⓘ *Un*coated UV filters lose about 8% of the light by reflecting it away from each air/glass surface. *Coated* filters lose less light and won't create strong reflections when pointed at bright lights. Try to get a multi-coated filter if you can.

ⓘ Any filter on the 707/717 will ruin NightShot and NightFocus modes by reflecting light back into the lens from the IR emitters and laser focus projector.

IR emitter internal glare off the back of a filter.

HOW LONG WILL THIS CAMERA LAST?

High precision mechanics and electronics will likely outlast your use of them. It seems that well-designed digital gear doesn't break very often until it gets dropped very hard. As with most high tech tools, if it doesn't break in the first few months of heavy use, it probably will run longer than you will.

ⓘ If your camera is functioning well right now, don't be afraid of wearing it out. Sure, you will rub the finish off a corner or two in the first year, or scratch the LCD, or ding the metal, but there are no professional cameras in use that don't acquire this patina of life.

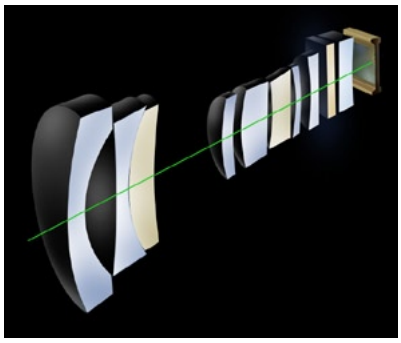
At any realistic evaluation, the cost per image works out to a few pennies and it is showing no signs of deterioration other than a cosmetic scratch here and there. Like many good high tech items, they *last*. Providing you don't traumatize them. You did *insure* your camera, didn't you? The camera above has been hard at work for over 9 months.

For a small percentage of owners, a switch can wear out or a tiny component can fail, and at times like these you will get to know Sony's repair service. Most repairs are made in less than two weeks, and some happen in mere days.

ⓘ Avoid blows to the front lens ring area. It is a particularly delicate area and damages easily.

WHAT DATA IS IN THE IMAGE FILE?

EXIF (EXtensible Image File) data is connected to every image and follows it through duplication from camera or Memory Stick to computer.



ⓘ Photoshop 7's Browser window reveals this stream of data and it documents nearly every aspect of the image. Image Format, Width, Height, Date Time (to the second), F-Stop, Exposure Time, Metering Mode (Pattern, Spot, etc.), Light Source (white balance), Flash (did it fire?), Exposure Program (priority mode), Focal Length, ISO and File Size are all faithfully tracked and documented.

Armed with all this information about the circumstances of the image, one can reconstruct much of what was happening technically during the exposure.

Voice files that are captured in *Menu* > *Rec Mode* > *Voice* are not simply copied with the image. They are stored separately as MPEG audio movies along with a low-resolution reference image into a different folder on the Memory Stick (e.g: MOMLV100) and must be imported separately to play from your computer screen. The large image and MPEG voice file share the same exposure number (e.g: DSC03705.JPG and DSC03705.MPG).

The MGI PhotoSuite software included with your camera expedites and coordinates downloading of Voice mode files and images.

CAN I SHOOT A COMPUTER OR TV?

Computer and TV *CRT* images have a *frame rate*. They scan a tiny intense electron spot from left to right, top to bottom, in a small fraction of a second, scribing a picture onto glowing phosphors. LCD screens, like you find on laptop computers, don't do this. You can shoot those at any speed you wish because instead of a frame rate, they have an *update* rate, meaning that their pixels are on all the time until told to transform into something new.

TV in the USA is in the NTSC format, and that means 30 frames per second. Computer monitors display anywhere from about 60 to over a hundred frames per second, depending on the setting from the computer and the ability of the monitor. An exposure that is too short can fail to get a whole frame (see inset) and have a dark bar across the image where the electron beam couldn't catch up to where it started during the exposure. An exposure just a hair larger than the frame rate may produce a slight overlap of the scan and cause a light or dark bar across the shot.

Oops! Too quick! A shutter speed of 1/30 sec *might* work for an NTSC display, but 1/15 or 1/8 sec would be better. For PAL displays, 1/25 sec *might* work, but 1/12 or 1/6 sec would be better.

ⓘ The best way to get a clear image is to acquire several video frames in the exposure and let the light average out so no bar can show. This means setting the shutter speed to Shutter Priority mode and gathering images at 1/15 or 1/8 sec.

ⓘ White balancing off a TV must be done manually. The camera has no native TV color setting, and each TV has slightly different color. So how can you make a good white balance from a color TV?

1. Turn the color (chroma) to zero. Drain it out. Now you have a Black and White TV image.

2. Do a Manual white balance on the B&W image. That's all there is to it. You don't need a pure white image to do a white balance, just a neutral gray image. Restore the color to the TV and shoot the picture. It's easy to add too much color to a TV image. Be careful.

Same process for a computer screen, except here you can open a white sheet of "paper" in Photoshop or a word processor page, and use that for a white balance target.

WHAT IS THE BEST GENERAL SETTING?

If there is one, it would be the fully automatic mode. Point and shoot. Most of the time your images will be just fine.

ⓘ In manual mode, Multi-segment meter, Auto White Balance, and middle Sharpening (0 setting) will do the trick.

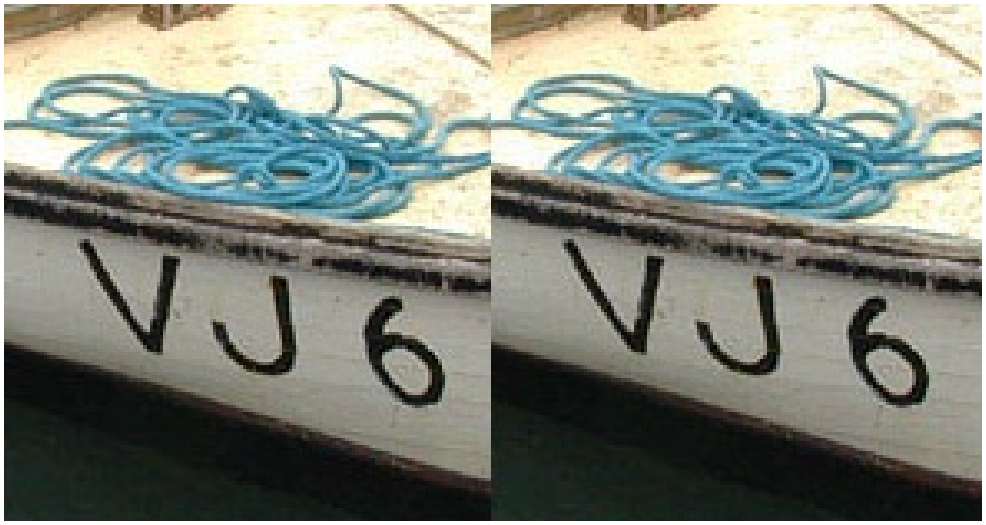
Other considerations are strictly personal. Since there is no best general photographer, except you, you will have to answer these yourself.

DOES *RE*-COMPRESSION HURT THE PICTURE?

It does, but not as much as you may think. Yes, every time you recompress an image it grows less detailed and contains more artifacts. In Photoshop you can save any image as a TIFF, a Native Photoshop *.psd* file, or as an uncompressed PICT, all of which do NOT degrade in any way with subsequent re-saves.

I tested an image by opening, re-saving, opening again, etc. ten times. Each time I made changes to the image to see how multiple sessions would damage it. Interestingly, the biggest damage came early, and subsequent generations showed less accumulated artifacts.

In the test detail shown at the left, the image was saved initially at the 70% compression level using Photoshop's excellent *Save For Web* option. Generations two to ten were saved at 60% quality to supposedly accelerate compression artifact build up. No changes were made to the image between saved generations. As you can see in this blowup, the artifact build-up is minor, if not invisible, even over the *nine generations* of 60% quality.



Generations two and ten of a compression save/open/resave/reopen sequence. No changes were made between generations. Which is the earlier generation #2? Without testing I could not tell, could you? (It's on the left.)

Excuse me, isn't each generation only 60% of the previous one? At that rate generation #10 should be only 1.18% of the quality of the original, right? Clearly, it is not. A print from either file shown would be nearly impossible to perceive as being different. So what is really happening?

Compression is rigidly consistent. Without new differences in pixel values to re-compute from one generation to the next, the compression engine puts pixel values right back into the same place with only very minor mathematical rounding errors. Generations two and ten have stayed virtually identical.

Layer two *identical* images. Make the top one negative (*Image > Adjust > Invert*) and use the *Opacity* slider to make it 50% transparent. The monitor image turns *pure* 50% gray. But, with the original and compressed copies layered instead, any differences—such as ones from the compression processing—show immediately as tonal changes from the medium gray result. When tested this way, generations two and ten above show *almost* no differences.

ⓘ The moral to the story: If you make *changes* with each save, artifacts do build up. Any crop, color or density change, geometric transformation, or retouch provides an opportunity for re-saves to increase JPEG artifacts. If you just add a touch up here and there, *only* the new areas are susceptible to re-compression artifacts. Changes *are* present from generation to generation, but they are nearly always invisible. As you can see in the example, each generation's cumulative loss is minor.

ⓘ The iNovaFX actions on the CD include a special action, iDeJPEG, for reducing the effect of strong JPEG artifacts, but using this action will not solve the recompression artifacts. Its purpose is more for preparing a highly compressed image prior to printing and only for pronounced artifact suppression. Look for it in the iColorDeNoise/DeJPEG.atn file.

CAN I CLEAN THE LENS? MONITOR?

Any photographic store will have lens cleaner and lens cleaning tissue. These work well. Some industrial supply places may have lint-free linen cloth pads about three inches square. Eyeglass stores have lens cleaners and these are generally less expensive than the photographic version but do just as good a job. In a pinch, use Windex.

ⓘ Never squirt or spray anything onto the camera directly.

ⓘ The lens is a special case. Never scrub the lens hard, never use repeated wet/dry operations to clean tough fingerprints and uncooperative smears from the glass.

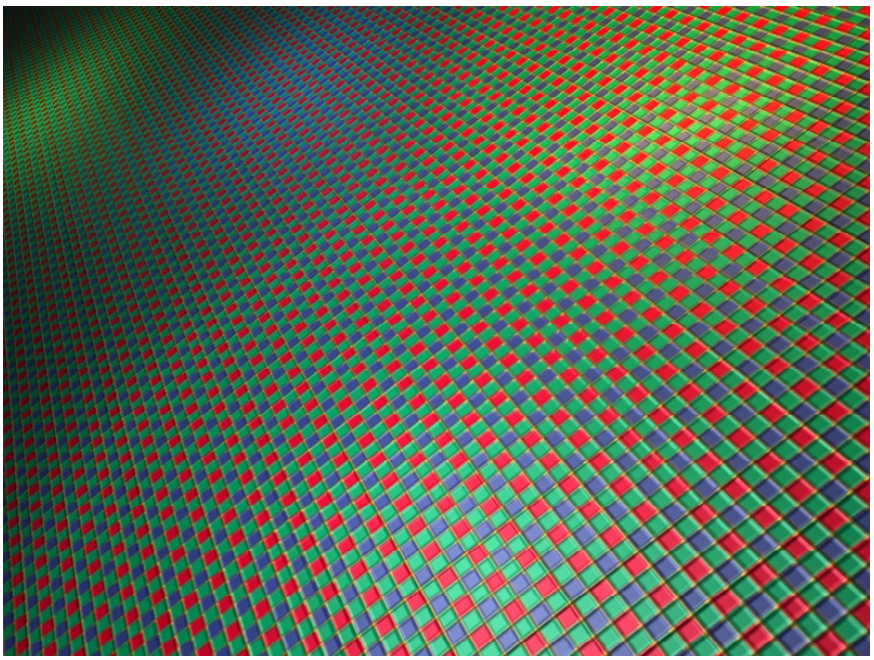
A recommended device called the LensPen (Sima) costs more than lens cleaning fluid but cleans up fingerprints (the biggest offender) easily and reliably *without* fluids. Use it only on the lens, not the viewfinder or eyepiece. Preserve its purity. Buy a new one each year.

HOW BIG *IS* THE IMAGING CHIP?

In the 707/717 the image chip is called "a 2/3-inch chip" by manufacturers and specification writers. Most people assume this means it is about two thirds of an inch across, or in its diagonal measurement, and that has led to mass confusion. Neither is the case.

ⓘ The measurement used here has nearly nothing to do with the actual size of the imaging surface area except in the broadest way. The term "2/3-inch chip" is a derivation of a measurement used by older tube-type *video* cameras that existed before the dawn of imaging chips. In those video cameras, a 2/3-inch *diameter* glass vidicon imaging tube would invariably have a photosensitive patch that was 11mm from corner to opposite corner. When imaging chips replaced tubes, the nomenclature didn't change. Go figure.

Your DSC-F707/717 camera makes its entire image on an 8.7 x 6.5mm area of silicon.



Imagine, with the 707 or 717 you have a camera that produces about 96% of the image detail of a 35mm film frame—which has 864 square millimeters of chemical imaging material—from a small slab of silicon that has only 56.5 square millimeters of active imaging circuitry. The digital camera is producing a picture about *15 times* more acutely than the film camera!

WHAT ACCESSORIES ARE AVAILABLE?

Every day somebody comes up with a new accessory for these cameras. At press time the list includes:

Sony DSC-F707/717 Accessories

Item	Source/Manufacturer	Approximate cost
Monitor Hoods	Jar Sun Shield	$ 8 ~ 16
	Hoodman	
Monitor Protector Sheets	Fellows WriteRight	$ 12
	Hoodman	
Filters, 58mm	Kenko, Hoya, Marumi+	$ 12 ~ 80
	2filter.com	
	CKC Power	
Filters, Special Effect	Cokin (over 140 exist)	$ 6 ~ $ 30 each
Lens Cleaning Device	LensPen	$ 10
InfoLithium Batteries	Sony	$ 60
Step Down Rings 58 > 52	2filter.com	$ 9 ~ $ 40
Camera Bags	Sony and many others.	$ 20 ~ $ 150
Slave Flash Units	Cobra	$ 16 ~ $ 50+
	Ritz Camera	
Converter Optics Wide/Tele	Sony VCL-MHG07/VCLXXXXXetc.	$ 99 and up
Tele	Olympus T-14	$ 180
Pseudo Fisheye	Marexar Ultrawidar	< $100 used?
External Flash for 707	Sony HVL-F1000	$ 120
	Promaster 5750	c.$160
External Flash for 717	Virtually all hot shoe triggered units	$ 30 and up
Remote Electronic Control	Sony RM-DR1 (wired—6 ft.)	$ 50
Form Fit Pouch for 707/717	Sony (two models)	$ 100 and up
eBook w/CD full of stuff	This is it	$ 50

(more information like this is in the Appendix.)

ⓘ In general you can take the supplier's name and add ".com" to bring up a Web page or use the entry here in an Internet search engine. I suggest using www.Google.com as your first Internet search engine to find a supplier.

CAN I TRIGGER THE CAMERA REMOTELY?

Sony makes a wired electronic remote control, the RM-DR1, that will power up and trigger the camera without touching it. It also zooms the lens, and allows your hand to be about six feet (two meters) from the camera during the exposure(s). The shutter button on the unit behaves exactly like the shutter button on the camera itself, having a half-press and full-press position that focus-locks the camera, then exposes the shot remotely.

ⓘ The remote plugs into the ACC socket behind and to the right of the pop-up flash. Fortunately, the other accessory that uses this socket, the HVL-F1000 external flash unit, has a pass-through socket on its base. Meaning that you can use the off-camera flash and remote trigger at the same time, but you will need to attach the flash unit to the camera first.

Power, zoom slow, zoom fash, half-press and fill-press in a low-cost wired remote release. Essential.

DO SOME FUNCTIONS "TIME OUT"?

Some do. The Camera modes will go to sleep in three minutes unless one of the function buttons is touched, moved or adjusted. Just about anything starts the clock all over, such as a half-press of the shutter button, an adjustment of the manual focus ring, any click to the EV+/- button, any switch over to Finder mode from LCD viewing, etc.

Program exposure, Aperture Priority, Shutter Priority, or Manual Exposure mode all behave the same way. It saves battery power and still gives you plenty of time to capture a next shot in most situations. Set Up and Play modes time out in three minutes, too. You wouldn't want a slide show to switch off in mid-image, so when Playback is showing slides in a continuous loop, the camera won't turn off until you tell it to.

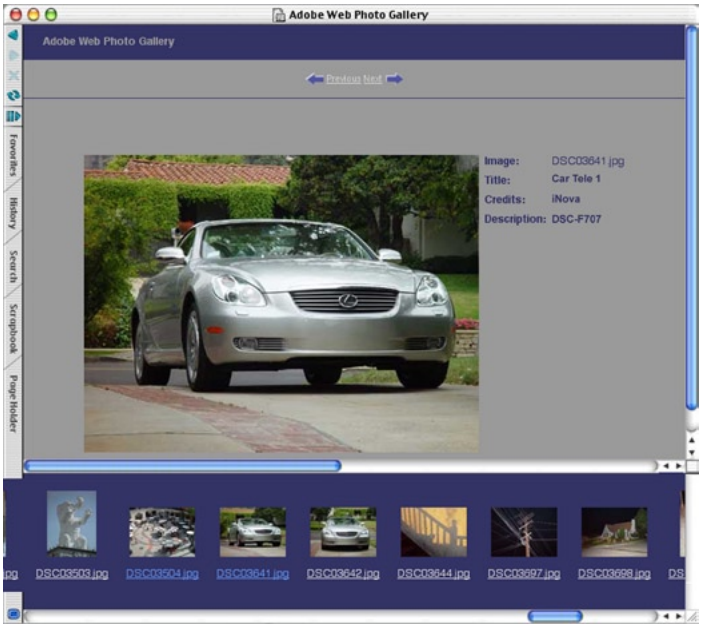
ⓘ Reminder to self: when in Slide show mode, do remember to turn off the display graphics.

ⓘ All this changes when the camera is being powered externally. Now there is no reason to switch the camera off to save batteries. Camera mode runs forever, as does Playback and Set Up.

ⓘ You can hold the camera in half-press for as long as you like. The 03:00 time-out is your only limit. AE Lock behaves the same way. A single press will make the exposure computation, lock it in, and wait for another button to be pressed, or the three minute rule will put the camera to sleep, whichever comes first.

Interestingly, a "Demo" mode will activate after ten minutes of no button presses in Camera mode. Demo would have to have been left in *On* previously for this to happen. The camera's live image becomes the background and a bunch of type overlay slides tout features of the camera on screen. Cute.

ⓘ Once in Demo mode, the camera becomes rather numb. It stops taking direction. No matter what mode you switch to, the type overlays keep coming. Trip the shutter and it *simulates* taking a picture without actually doing it. To get out of this strange mode, simply switch the camera off and back on. Now it remembers how to be a camera. Thankfully, you can switch Demo mode off in the Set Up menu (*Set Up* > *Setup 2* > *Demo* > *Off*).



CAN I PUT MY IMAGES ON THE WEB?

There are a number of ways of getting your images into the Internet. You can post them on any of a number of services such as Ofoto, Webshots, and FotoTime (all found by adding .com) that allow you to upload them to the host site and immediately see them as collections of images under uniquely named portfolios. Check for features like public and private albums, quick upload, unrestricted number of images allowed, indefinite storage, and tracking of "hits" that the photographer can reset at any time.

Digital on-line photo finishers like DotPhoto, Ofoto, and Shutterfly also will let you store and display your images from their site. They also want you to order more prints, and most will allow friends and family to order prints of the shots on display.

ⓘ For the greatest control, you can make your own Web page in Photoshop. Use the *File > Automate > Web Photo Gallery* function. It will read every image in a folder, make a thumbnail of it, reduce the original to some appropriate size, and generate all the web pages with captions, interactive controls, and easily browsed folders of organized images, all in one step! In order to prepare to use it, you simply create a new folder full of images, give the images names for captions, run the *Automate > Web Photo Gallery* function, and stand back from your computer for a few moments while it creates everything neatly organized into a single folder.

Then upload that folder onto your own Website in the normal manner. An interesting PS7-generated web gallery images can be found here—**http://www.digitalsecrets.net/Sony/autowebgallery/**

MY PRINTS DON'T LOOK JUST LIKE THEY DO ON THE COMPUTER

Nor will they ever. Glowing phosphors can only approximate the look of ink on a piece of paper, but getting the estimated image on the screen to be close enough to work with is the first step. While nothing can fully replace the idea of accurate monitor and printer calibration, most people simply don't have the time, equipment, software, and experience resources to achieve this.

Some images are just right from the camera needing no manipulation before printing. Prints from these can help you set up your monitor.

Most technologists will have you calibrate your monitor to a standard, then apply the corrections to your printing process that bring it in alignment with that standard. There is a more practical way of creating consensus. It's not as accurate, but it helps.

Principle #1: The camera (unless it is broken) will generate files that look like Very Nice Photos under bright light or direct sunlight. Good color, good shading, good contrast, and good brightness can be achieved readily. Especially from a non-challenging

item like a colorful reflective piece of art. The color pattern test file under this eBook's dust jacket is a good example. A photo of it should look just one jump duller (on a scale of ten, for example) than the original when viewed next to the original file on your monitor. But since this isn't from your printer you must print the *original* file; shoot *that* print as a photo with the 707/717. Print the image of the print. Then compare the two. Now some real evaluation can begin. The difference between the two is the sum of all factors from camera to print as experienced by your camera, your computer and your printer uniquely. Keep in mind that the page has only the range of ink on white paper, a mere whiff of real life's visual dynamics.

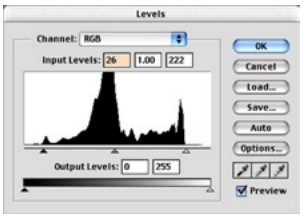
Principle #2: Photorealistic printers these days can make a good file into a good print unless something between input and output messes it up.

Chances are good that the overall look of the print of the test image will be nice, but certainly not perfect. It will have nicely stepped gray scale containing a general tint, but the white will be darker and the black part of the gray scale won't be fully black. The colors, while colorful, will be not as vivid or well delineated. Typically, the magenta will be less distinguished from red, and the green and yellow, duller. Remind yourself that this is a photo of a print, not the original file that spans the full brightness and color range that the computer can produce.

Note the image on the right. It's one picture of the test pattern along with a print of the test pattern all in one shot. The top test pattern is "live" while the print is what I refer to as looking "a full step duller." Since the image here is a second-generation image, the tint shows here about double the strength it appeared to contain live.

If you can shoot a picture, put it into your printer via your computer, and make a high quality photograph pop out of your printer, all while your monitor looks very different from the picture, don't fix the input and don't fix the output. They're probably fine. The chief offender is either your computer monitor or software that somehow is re-interpreting the image before it is displayed. The computer monitor, its drivers, or the displaying software are either set to the wrong brightness, contrast, gamma, or color settings. Possibly a bit of each of these. If it is the software, you will have to dig into that to neutralize the effect. Photoshop contains a set-up utility called Adobe Gamma that should get your display much closer.

For the example shown, the eBook color chart was pulled out of the package (avoids glare) and photographed directly. Since the dynamic range of the DSC-F707/717 is greater than the page, a Photoshop *Levels* adjustment (bottom) was made to the file before it was printed to the 7.25-inch width of the original. No other adjustment was made. The print was then photographed with the original chart. The sum of all color and tint artifacts from the computer, the printer software drivers (Epson 2200), glare on the original chart and the glossy print add up to the differences seen.

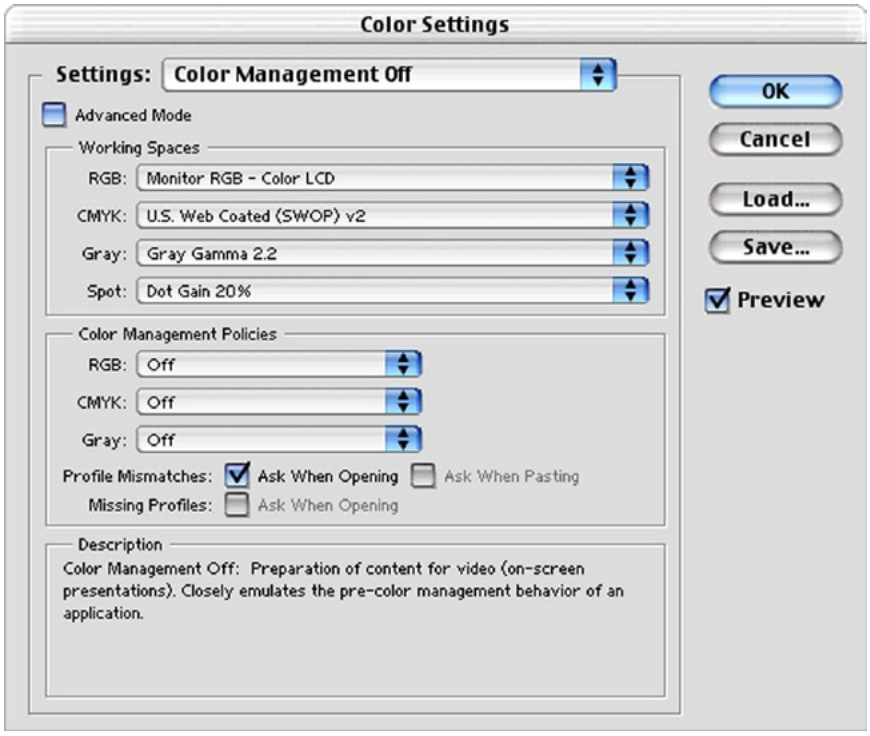


ⓘ Are you seeing a tint in gray areas on your monitor? Then your monitor is producing the tint or something else has colored the image. Check it in the Info window of Photoshop (*Info > Pallet Options > First Color Readout > HSB*) to be sure that any saturation (*S*) in the gray areas is a low percentage. My file shows 9% on the top chart, 12% on the lower chart.

ⓘ If you shoot with a Skylight or UV filter over the lens, that may add a very slight warm tint on the image when using a factory preset white balance. If you manually white balance for accuracy, any filter tint will disappear.

CONFUSED ABOUT PHOTOSHOP'S COLOR CONVERSIONS?

Photoshop 6 and 7 can confuse you about color set up. Here is how you get back to a level playing field: In Photoshop 6 or 7 under the *Edit > Color Settings* set up. This window should be filled out with these entries. Most of them are automatic after selecting *Color Management Off*.



Unless you are involved with a sytem that needs strict color management, the best thing to do is to turn that feature off. Now it becomes a matter of adjusting the look of your monitor to better match your printed images until you get "predictably close."

See that *Profile Mismatches* box that is checked? It forces a dialog window with every image you open. If you uncheck the box, it will stop asking you each time. But the top *Settings:* window will now read *Custom.* No worries. As long as *Acvanced Mode* is not checked, color management will still be off.

Close the window and open a new image on the screen. Photoshop will no longer "convert" files upon opening. It will not compensate for the monitor's set-up file either. If it looks different from before, it may look closer to correct. This would be a good sign. But the monitor itself still may not resemble the tonalities and colors you are seeing on that reference print. At least you will have confidence that the variables from Photoshop have been neutralized.

Your options are several.

1. You can carefully use Photoshop's own set up steps to tune your display.

2. You can use a third party calibration system like the one from Monaco Systems to zero in on the color.

3. You can use the iNova Approximation Method to simply get close enough to judge some things.

INOVA APPROXI-METHOD

Simply stated: Use whatever means you can to make the computer monitor agree with the *print*. Most higher quality monitors have a degree of color finesse that will get you closer using the controls of the monitor alone. Photoshop's own basic set up program, Adobe Gamma, may benefit from this manual intervention tweak, too. (Providing it helps.)

If your computer will allow you to have several setup files for the look of your monitor, name this new one "Photo." If you are using lots of photographic images in a program like PowerPoint, the Photo file may be useful here, too.

If the process of changing your monitor's setup file is too complex or does strange things to the look of other programs, go back to the Photoshop *Edit > Color Settings > Working Spaces RGB:* window and try different settings. We're desperate here, but it is only approximate.

ⓘ Get lost? Take it from the top. Photoshop's *Color Management Off* followed by Adobe Gamma program followed by manual tweaks compared to prints in hand. Try to match the print viewing light color to the white point of your monitor. Indirect daylight or desk fluorescent lamps are approximately correct. Halogens are the worst thing you could judge prints under; they are too warm. Then try the Photoshop color calibration controls (*File > Color settings > Working Spaces RGB:*) to see if you can get closer.

Principle #3: The first print is almost never the final. Ansel Adams said that, "a print is *never* done." Okay, it's not really a principle, it's more like a theory, but it seems to hold true. If you can get comfortable with making a small print first to test the picture, you may be saving yourself lots of ink and paper in the long run.

ⓘ An exceedingly helpful program, Test Strip—now in its third generation—is a Photoshop Plug-in for Color Correction, Proofing, and Calibration, made by Vivid Details. It is THE program to use when attempting custom results and it will allow you to make strips and multiple small prints that show you exactly what this or that variation in color or density will look like. It will give you more experience in a weekend of printing than a college-level course in the subject (except that the cool schools use it, too).

ⓘ Version 3 of Test Strip's tryout version is on this CD. Not only that, but it is *fully* functional for 30 days. Thank you, Vivid Details!

After a while, even if your monitor always shows a tad too much contrast or imperfect gamma, you will begin to anticipate how the print will look anyhow and your judgements will improve. Many images will be just fine in the first print with minimal post production. You will rarely, if ever, get it perfect at first.

ⓘ You will know that you have passed a threshold when you look at a shot and immediately see that it was made in the shade and has a subtle layer of bluishness on it that a quick touch-up will fix up before printing. Most of your viewing audience won't be as sensitive to the colors the camera produced and would look at a straight print and say "fine." When you show the print with the minor fix, they will naturally prefer it, but most folks are used to seeing what the one-hour photo store produces and subtle corrections just won't be on their horizon.

MY PICTURES ARE TOO THIS OR TOO THAT

Welcome to the club. Mine are *always* too this or that. Too blue, too warm, too contrasty, too dark, too tilted. So I crop, change the white balance and tonal curve (*Curves*), or change the gamma (*Levels*), punch up or down an area of color (*Saturate/Desaturate* sponge), sharpen an area (*Unsharp Mask* filter), blur an area (*Quickmask* followed by *Gaussian Blur*), or shift the color of shadows, midtones, or highlights (*Variations* or *Color Balance* windows). Often the most useful tool is the one that punches up the color (*Hue/Saturation*). Here you can attack individual zones of color or the color of the entire image at once. Shifting hue in the + direction will turn yellows greener, blues more magenta and magentas redder. Boosting chroma can go as high as +40 in some shots, and you might want to drop chroma to zero to preview shots as B&W images. Some may even look more dramatic this way.

Original file lacked color. So I tweaked.

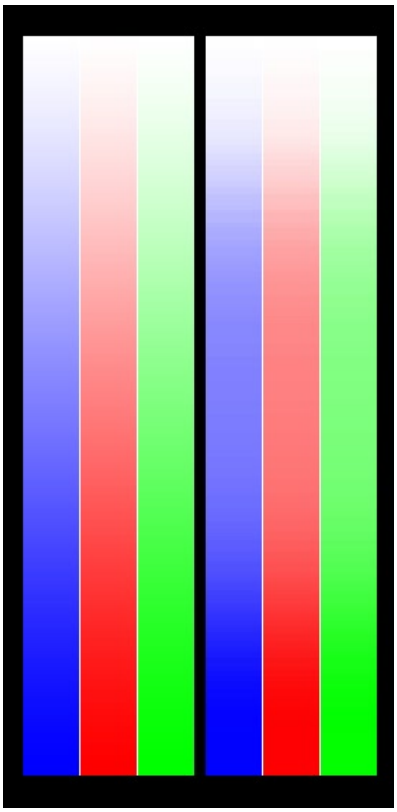
HOME IN ON THE RANGE

As I work through these operations I am asking a digital image to do things that have an analog result. It is all too easy to go beyond the limits of digital manipulations, and often some aspect of a shot simply can't be saved. Fortunately most off-color corrections are minor.

ⓘ One of the most common is the slightly blue image usually shot in shadow. This too often fools the Auto White Balance into missing the color. Here's how it is easily fixed: Open the image in Photoshop and open the *Image > Adjust > Color Balance* window. This is the color control that lets you treat highlights, shadows, and midtones separately with three numerical sliders for each domain. If you enter a number sequence of 20, 0, -20 the picture will warm those blues away.

You thought it was supposed to be totally computerized, thus perfect? When that truly happens, science fiction movies will come true, and the computers won't need you or me any more.

If you feel that your camera just isn't producing good color due to a failure of some sort, try to find another 707/717 owner, and team up shooting several things at the exact same settings. Compare shots, and if your camera is still deficient, call up Sony. (The chances of two cameras being screwed up exactly the same way is almost nil.) Not every camera that rolled off the assembly line was perfect, and since camera and "film" are the same device, it will be up to them to get it right. But before you call, try the Reset button inside the battery door.



The gradient on the left is made of 256 steps each of red, green, and blue. The one on the right has been squashed and unsquashed several symetrical ways. The bands in each color are places where data has developed missing continuity. It is easier to do this in a photo than you may think. And if your display shows *both* sides with banding, then you're not seeing the full 24-bit, 16-million colors available in this image.

COLOR SPACE: THE INFINITE FRONTIER

Your eye has about a billion-to-one brightness range, and the print you are making has only about 250:1 from darkest to brightest as displayed on a sheet of paper under ideal conditions. In order to push good results into this narrow range, you must be aware of how changes can pile up on each other.

Each type of change is easy to manipulate on its own. Sometimes, too easy. As these 256 levels of available range in each of the red, green, or blue channels of the image are lifted, contrasted, darkened, distorted, blurred, and sharpened, the relationships between the values becomes non-linear. The potential 16,777,216 different variations of tonality and color will begin to have gaps due to multiple rounding errors.

We can understand that an image which is made to have a contrastier look must do so by stretching its gray scale. In a typical case, a 50% increase in contrast, values from 0 to 170 are reassigned and redistributed from 0 to 255. Original values 120 and 121 now become values 180 and 181.5. Of course, there is no such thing as value 181.5, so this one jumps to 182. The original range of some numerical values are now separated by 2/255 , nearly one percent. This is about as far as you can push the values in an image before your eye starts noticing artifacts. Higher compression starts making itself obvious, and fully saturated solid blues and reds are the first to suffer.

Going further *really* hurts the image. At 2.5% separation between values, the entire gray scale has been reduced to just 40 steps, and the color palette has dropped to 0.38% of the original image's range, just 64,000 colors. With fewer tonal steps, each color channel becomes less capable of fine discrimination.

ⓘ Fortunately, for many operations Photoshop has the ability to work internally with a range of more than 8-bit, 256 gray levels. A menu choice allows you to adjust grayscale sensitive operations as 16-bit changes instead. Check the *Image*

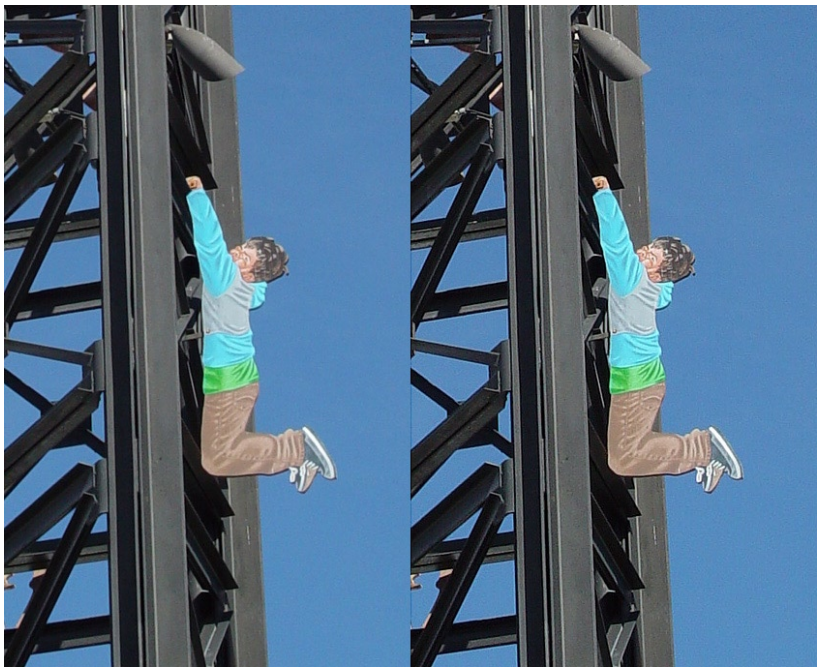
> *Mode* > *16-bits/channel* option before doing heavy changes to a picture. Now when gamma, contrast, curves, or color changes are made, the original values are being shuffled up and down a scale with not just 256, but 65,536 gray levels between the darkest and lightest values. As a last step, after several manipulations, these 16-bit images are resolved to their closest 8-bit equivalents for storage and printing. In doing so, you are imposing only a single instance of rounding error, not the total of many.

Not all images are to be representations of exactly what the camera saw. By violating the rules of "good" image handling, very interesting effects can appear. I would encourage you to chew up images as much as you can, making test after test to see what you can get away with and what you can't.

MY PICTURES AREN'T SHARP

Question number one: How are you viewing the image? A 100% scale image on a computer monitor? Is each pixel of the original displayed as a pixel of the monitor image? A 66.7% scaled image in Photoshop? A print that was made at 72 ppi?

There are lots of ways of diminishing detail. Camera movement is common, faulty optics and focus mechanisms are less common. Viewing conditions are very, very common. Often, unsharpness is a result of misfocus. Something is sharp, just not the thing you wanted. Other times, the auto-focus hadn't finished the job, but the shutter button went all the way to exposure. If the camera isn't in focus, then practicing achieving good focus is a remedy. Remember, it's a two-stage process; try to pre-focus before the decisive moment comes along.



No children were harmed... The 707 is very sharp at its default, 0, setting, but you can enhance the apparent sharpness in Photoshop with the Unsharp Mask control. Look close and you will see that this makes the desperate child look like a cutout. Why? Because it IS a cutout.

ⓘ Manual focus may be needed for situations where the auto-focus isn't efficient, like dark and uncontrasty situations. Twenty minutes of fooling around with a meterstick and a tape measure can do wonders for your ability to estimate short distances. Or let the camera teach you by creating an informal Estimation Lesson. Setting the camera on 1.0 m or 3 m and watching the monitor will show you what the camera is looking for and the tolerance it has. Move in and out from a subject until it is equally out of focus this distance and that. Then put the camera in the middle of that range and shoot a test shot.

Question number two: What are you looking *through*? A JPEG viewing utility with limited capability or a well-scaled display program that carefully interpolates the image into place? With 33% and 67% images, even Photoshop does a far poorer job of displaying an image correctly. At 50% and 25%, the images are much better looking on screen. Exact divisions of two are easier to display with precision. At 66.7%, three pixels of the original are trying to squeeze into two pixels of your monitor's display, and the fast display scaling routine won't do it perfectly, so you will see jagged detail to a certain extent.

Question number three: How close is your nose to the picture? Are you observing the image at a position that makes sense? Are you trying to look at a tabloid-sized print at normal reading distance?

If all of these questions reveal answers that indicate you are doing everything just right and the picture itself doesn't seem sharp you may need some Sharpness Helper.

When you first open an image on your computer screen and view it at 100%, left, the image seems soft. No wonder, it's a detail from an image 37 inches wide or tall. If it were a print of the whole image, you'd probably stand back from it to take it all in. The reduced image on the right has more detail per displayed pixel because it was downconverted. Both are 72 ppi on this page.

FOCUS POKUS

At full-size on the computer monitor you are witnessing the pixels directly as the largest image your camera can make. Unless you have a monitor that displays 2560 x 1920 pixels (extremely rare and with very small pixels), or 2048 x 1536 pixels (almost unheard of and larger than HDTV's best), some of the picture is off the screen. If you look at it half-size (1280 x 960) they'll look *much* sharper. Millions of colors only, please.

Photoshop has the filter called *Unsharp Mask*, and it masks the *effect* of unsharpness. For images on the border of sharp, it can be just what the doctor ordered. For whacked-out, blurry pictures, it simply won't help. Used too strongly, it can exacerbate grain. And I bet that sounds painful. So using it becomes a balancing act.

ⓘ Select the image and set the filter to give you a 80% to 120% effect over an image area of only 0.3 to 0.4 pixels. Use this number as a starting point. Rarely will you need to go over a pixel radius of 1.2 at an effect strength of 120%, but you can always go too far on purpose. For fine work, try small radius numbers and large strengths. 0.2 pixel at 300%, for instance.

Because the image chip in a digital camera is doing the work of all three primary colors, the images won't be as sharp as a high quality scanner's version of a photographic original.

So what are these images good for if they're not the absolute maximum sharpness? At 160 ppi on a printed page—a number that will present satisfying detail—the DSC-F707/717 full-size shot ends up covering 12 x 16 inches (300 x 400 mm) of real estate and looks quite good.

WHAT'S WITH THIS PIXELS PER INCH/DOTS PER INCH THING?

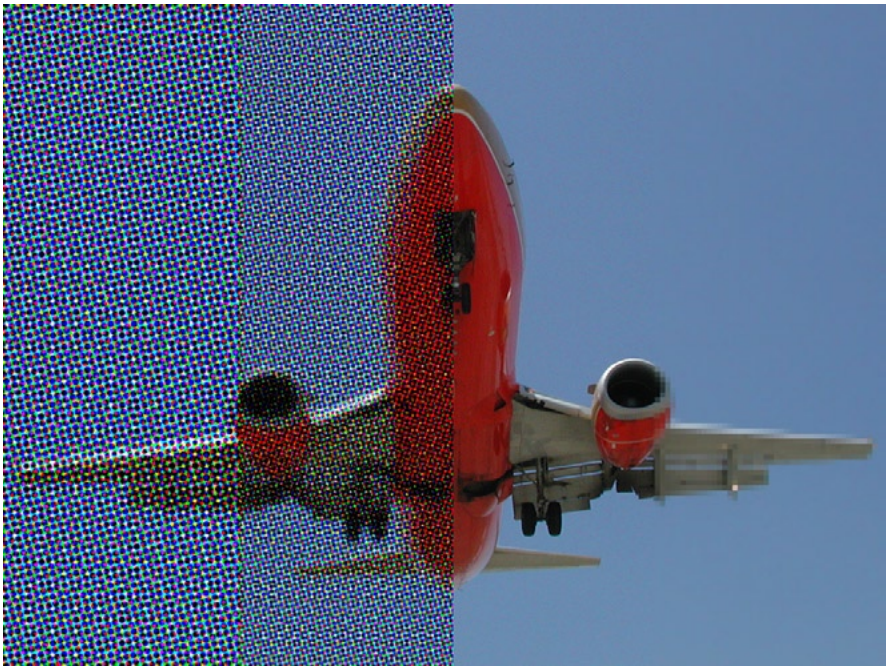
Confusion often sets in with three little letters: d p i. In inkjet printer language, dpi means *dots per inch* or, more realistically, indexable *points* per inch that the printer *could* fill with a dot if it needed to. As a measure of printer precision it carries weight and meaning. As a measure of how sharp your picture will look, it means less. When you think about it, the number of printer dots is nowhere near large enough to perfectly portray each pixel.

In Photoshop, the *Image Size* control not only lets you scale the image by enlarging or reducing the number of pixels, it lets you scale the output by changing the number of *pixels per inch* the output will use to print the image.

These pixels per inch, ***P***pi, are completely independent of the printer's dots per inch, ***D***pi.

A shot with 144 pixels per inch that is fed to a 1440 x 720 dpi Epson printer will be interpreted on the page with only 50 total ink dots available to define the color of each original camera pixel. To be completely faithful to the original, it would need a minimum of 256 dots per pixel to cover the 256 levels of brightness for that color.

It is short by a factor of five. So the printer has to cleverly interpret the shot in order for the print to survive. It dithers the pixels pseudo-randomly to cause your eye to see, in effect, what really isn't there. It works so well that over 99% of the people who see this kind of print will immediately take it to be a photograph without question.



Dots vs. Pixels. The dots per inch are the ones that look like dots. Book and magazine prints use variable size dots to deliver ink to page. The inkjet printer uses tiny dots but varies the number of them statistically. Either way, the dots interpret the underlying pixels of the image. More pixels=better image. Unless there are too few dots. For the full effect of this image, view it at 300% or larger.

Photoshop's *Image Size* window also lets you resample the image if you wish. With the *Resample* check box activated, changes to the image size are also changes in the number of pixels the image will become. With the *Resample* check box unchecked, any changes made to the size of the image will only change the pixels per inch inversely. Larger prints will have fewer ppi, smaller prints will have greater ppi. In other words, ppi is a distribution or scaling number, not a file size number as in, "Bigger pictures = bigger files," which, as we can see, isn't always the case.

ⓘ At 300 ppi in Photoshop, a full-size image will be almost exactly 8.5 x 6.4 inches (217 x 163 mm) in size. On a letter-size piece of paper it will be surrounded by a generous border of white, and

with the right printer and paper, people will remember it as an 8 by 10 print. But it will be sharper and more detailed than virtually any print from a film camera that they've experienced.

I NEED TO DOWNLOAD THROUGH THE USB CABLE

It's easy. Connect the camera to the computer with the provided USB cable. You have to do this through the special port under the right front side of the lens. Now power up the camera.

A special icon will appear on the desktop. Your computer thinks you just attached a USB hard drive. You can open it up and see folders inside. They can be dragged to other folders or dragged to the icons of programs like Photoshop, JPEGView or any compatible application.

ⓘ When you are finished, eject the USB "drive." Turn the camera off. *Then* disconnect the cables.

Downloading is quite rapid. The most recent Sony drivers achieve rapid download, archiving and sorting. See the camera manual for details.

I NEED TO DOWNLOAD THROUGH A CARD READER

Now you're cooking. Card readers come in a variety of sizes, costs, cable connectors, and compatible types. If your laptop has a PCMCIA card slot (also called a PC card slot) you're 92.4% of the way home. The Memory Sticks fit into a special carrier, the MSAC-PC2, that simply inserts into these slots and magically show the Stick on your desk top as a new disk drive. Copying things out of this drive is just like moving any other data file around. Desk computers and more sophisticated workstations usually don't have these handy card slots built in, so you must attach one.

Card reader models are made to work with USB connections, Windows and Mac serial connections; even SCSI connections. Costs of these are plummeting. Some take a variety of memory card types.

HOW BIG DO THESE PICTURES PRINT IN A MAGAZINE?

In the dot-screen world of magazine reproduction, different sized screens are used to deliver ink to the page. Newspapers often use screens as coarse as 85 ~ 100 dpi, and high quality reproduction rarely is made with screens finer than 180 dpi. Screens of 133 dpi are common for magazine and book reproduction. If your image has more detail than the dot screen can reproduce, the effect of oversampling kicks in and the image quickly rises to the maximum quality that particular screen could *ever* reproduce. Factor in the idea that the immediate output of these cameras isn't pixel-perfect, and the maximum size for a 133 dpi screened image might be only around 12 inches to appear at *maximum* sharpness. Now look through some magazines and ask yourself how many of the images are *maximum sharpness*? A recent walk through several magazines showed me that over 90% of the reproduced editorial content was smaller than 5 x 7 inches, and of those, only about 75% were at or near maximum dot screen limits of portraying sharpness. Large images were often less sharp in general. Even in the ads.

ⓘ Those are the numbers, the practical answer is this: as big as they can. Full-size files can fill a typical magazine cover with an image nobody will spot as having come from a digital camera.

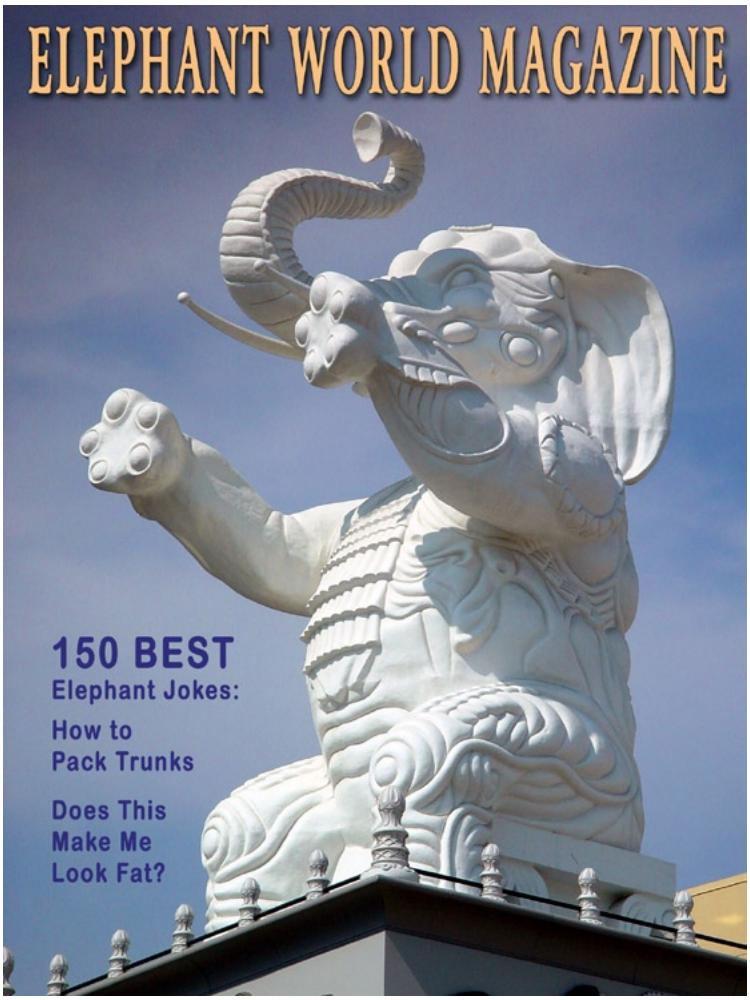
CAN I USE THIS CAMERA PROFESSIONALLY?

If you were a client and heard, "No really, these things are nearly as good as 35!" coming from your photographer, would you buy into it?

If you show a portfolio of results—prints with depth and color and interesting images to a client and then say, "...and your stuff is going to be just as good as this," you stand a chance.

The upside to digital photography is occurring to clients less rapidly than it's seeping into photographers. If you know that this is the right camera for a particular job, then it may be right to suggest it to the client. Usually you have to prove things to clients—they are not in the business of breakthrough new technologies, nor should they be. From their perspective, they are abandoning the Proven Solution for a New Thing, and to them that translates to "the New Thing Which May Or May Not Work." Show example prints.

ⓘ Sell carefully. If the only thing they see from you are compelling images, the question may never arise. Good 35mm images make nice tabloid-size prints at best, and exemplary 5 megapixel shots are impressive at this size, too. The 707/717 is quite a match to 35mm images.



I NEED TO SHOOT THROUGH A TELESCOPE OR MICROSCOPE

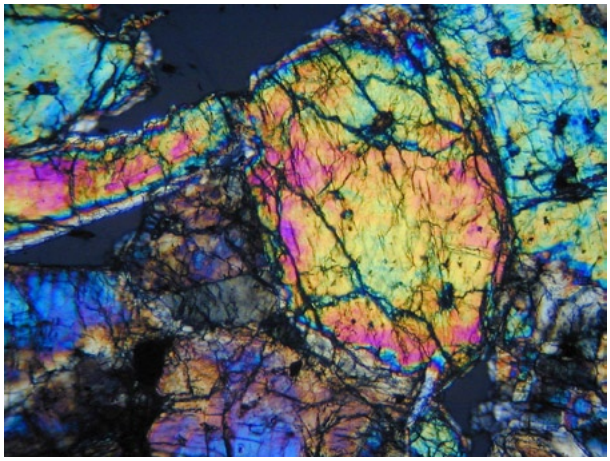
Telescopes and microscopes work well with cameras that parallel the human eye in optical dimension. The DSC-F707/717's large zoom lens does *not* lend itself to viewing through the eyepieces of telescopes and microscopes easily. Most eyepieces vignette and lose edge sharpness.

Telescopes may give useful results with an extra-wide field eyepiece such as the 40mm MaxView and Digi-T mount, both from ScopeTronics.com.

Microscopes are a different story.

ⓘ If you must shoot with a microscope, check out cameras that have small-diameter lenses and can be adapted to external optics. The smaller optical package is better suited for afocal (eye like) viewing through optical devices.

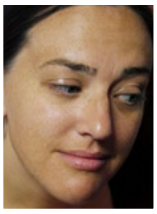
ⓘ That said, investigate the MM99-707 optics from martinmicroscope.com. They may have solved the issue.



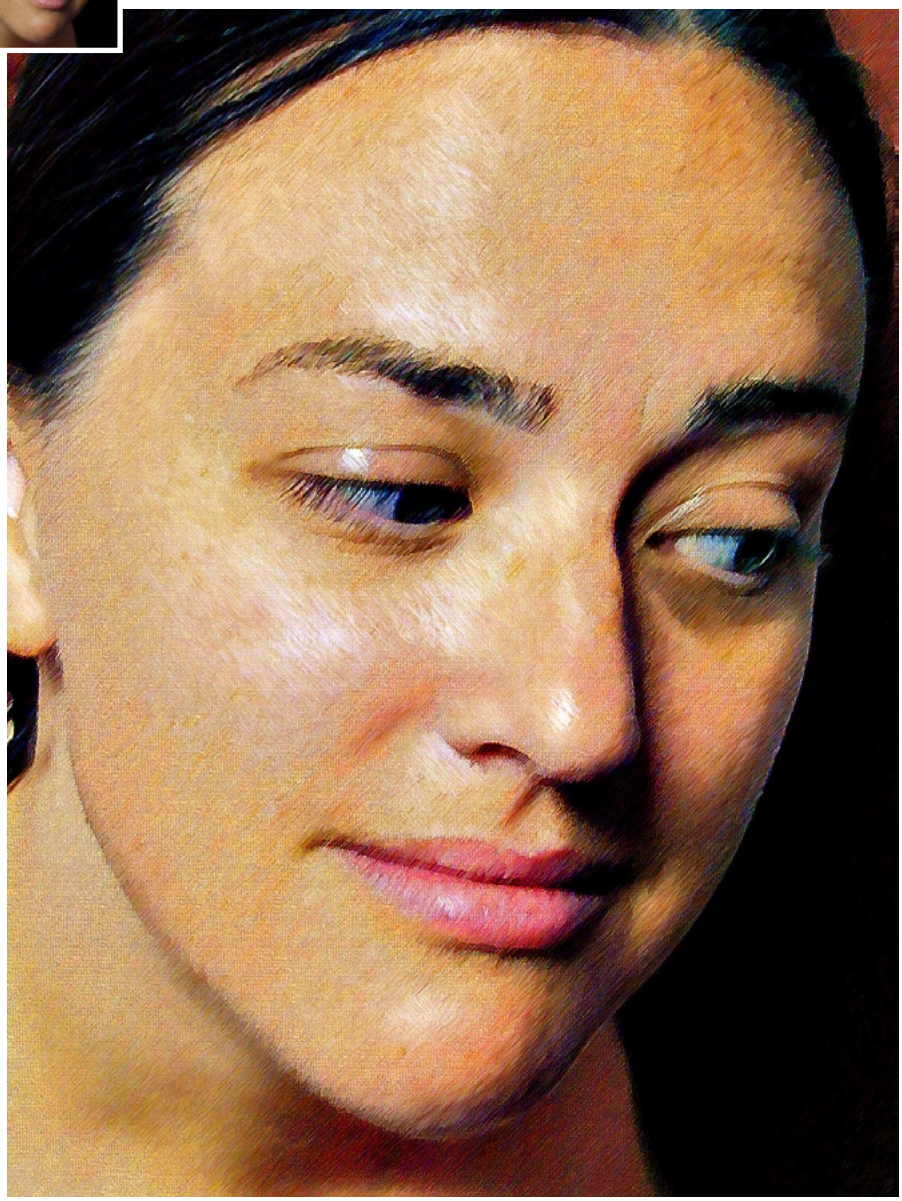
Mars meteorite seen in polarized light through a Leica microscope at 100 power with a 2-megapixel digital camera. It takes the right tool for the job to shoot successfully through the eyepieces of telescopes and microscopes.

I WANT TO TURN PHOTOS INTO ART

Who among us hasn't looked a particularly appealing photo and suddenly realized that it would look very much better as a painting? Sometimes we can see this shaping up right in the viewfinder. Some of the artistic tools in Photoshop will help and turning an image into a sketch, water color or painting is a fun way to learn how various filters affect the image.



Beyond Photoshop, a specialty program is helpful. On the Web you can find a demo version of a program called Artist which is designed to turn any sort of image into natural media artistic renderings. Suddenly photos become chalk drawings, paintings, line art, crayon, airbrush or sketch art as rough or finished as you can make. (www.synthetik.com)



View this at a 200 ~ 400% blow up to see the canvas texture and brush stroke detail. What began as a completely candid digital photo now feels very painterly. iNovaFX iCanvasPainting3 action in the iComplexArtFX actions file.

It is a lot of fun to play with, especially when applied to portraits, vistas, small objects, flowers and things best seen somewhat abstracted. The range is great, the demo is free to play with and who knows, it may unleash hidden talents within you.

As you experiment with it you will find that not all images work the way you think they would. Combined with the creative resources of Photoshop, you will develop skills of perception and image manipulation that produce more pleasing results.

ⓘ Also on the CD are the iNovaFX Photoshop Actions, one group of which, the iPS actions, have variations that make a range of art and painting transformations of your photos.

ⓘ The iNovaFX PS Actions also include a group of complex art generators that go far to produce very artistic results. Variations allow you to select the best result for your individual image.

I MUST SHOOT A LOT OF SMALL OBJECTS

The best solution is a small, table-top copy stand. Models from various manufacturers will do the job. It should be capable of mounting the camera *over* the center of the base. An example would be the Bogen Mini-Repro, a five pound base, column and extension arm that centers a camera up to two feet (61 cm) above its base. B&H Photo Video in New York usually stocks them. Another one is the CS-14 from Bessler.

In Macro mode, mid-zoom produces the least barrel distortion while allowing the camera to focus to about four inches (100mm) from the subject. You probably won't need to shoot all subjects at the exact same field of view, but remember that as you zoom towards telephoto, pincushion distortion sneaks in, and as you go wider, barrel distortion begins to show.

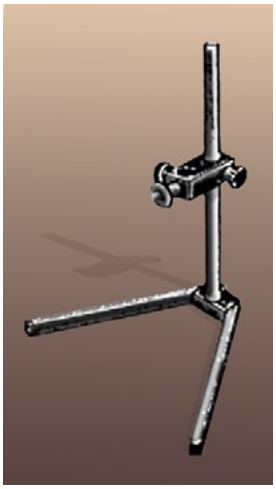
ⓘ At four inches from lens to subject, the field of view is quite small–just a bit over two inches wide. This may work for things the size of a watch, but for smaller objects, you will need to get closer, and for larger objects, you will need to back up.

Moving the camera while it sits at mid zoom is a good way to ensure minimal barrel distortion, but it won't work for everything.

Instead of moving the camera closer to the subject, why not lift the subject closer to the camera? This is an adaptation of a motion picture scene staging technique, but it works. On the set, a common tool is the "apple box" and it comes in several different sizes from small shims to boxes sturdy enough to lift Orson Welles a foot above the ground. For copy stand images, that means having spacers that will support the object closer and closer to the lens. Books work well.

ⓘ If you use a sheet of white paper behind your target subject, use several sheets or a neutral, opaque sheet of cardboard underneath. Why? Paper leaks. It shows a ghost or shadow of the underlying book cover, printed page or graphic that will show up in your image, but might not be noticed by you before the shot is taken.

ⓘ OR, you could find a tripod with a reversible center column. Many designs allow you to invert the adjustable column for low level work. Mind the shadows from the tripod's legs, now.

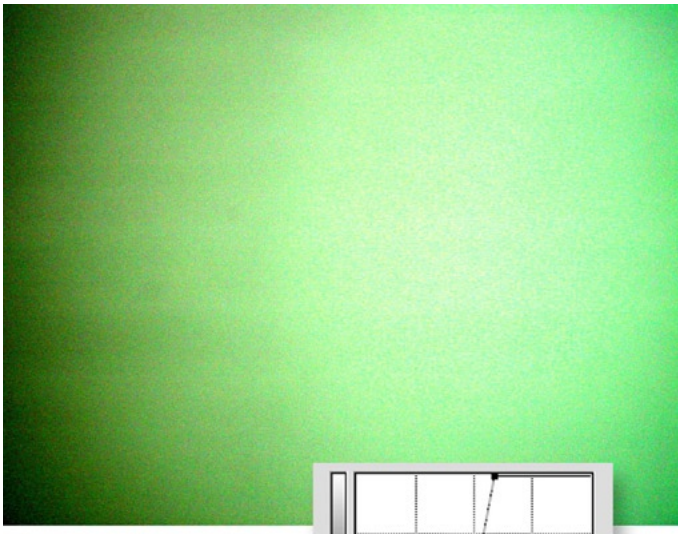


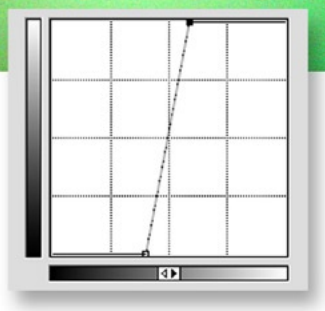
Testrite CS-7 mini copy stand is only 18 inches high, but the base serves as an under-art support. Very inexpensive, simple, straightforward.

Bessler CS-14 Copystand with optional lights. When you need to shoot many pages, small objects, flat graphics or artwork, a stand this versatile could make your life easier. Most copy stands look like variations on this basic plan.

MY IMAGES LOOK DARK ON THE LEFT SIDE.

A number of DSC-F707 cameras have fallen victim to the phenomenon called DLS (Dark Left Side) or LSD (Left Side Dark). In most images it is so slight (about 4%) that it doesn't substantially impact the image. But when shooting a blank wall, an even sky, a foggy vista or a panoramic string of images, the effect may get in the way.





The effect of exaggeration. The top image was auto-exposed into an even white fluorescent lightbox. The bottom image is the top image showing the center 12% of the dynamic range. It shows the *shape* of DLS by exaggerating its range.

Your choices for remedy are two: Have Sony fix it for you, or deal with it in your computer. If Sony fixes it, the phenomenon will be reduced, but since light distribution from virtually *all* lenses is not 100% from center to edge, you may see little difference. Some users have complained that they have sent the camera back for repair four times before receiving a "satisfactory" camera.

In dealing with it in your computer, it is helpful to know the exact nature of the image effect. What people call dark left side is actually a vignette-like effect that shows up more strongly on the left side. It also changes in strength with zoom and iris settings.

You can force your computer to show you the effect by shooting a blank wall or absolutely flat white surface that is lit perfectly evenly. To reduce the chances that the lighting on the wall has its own slight shading that your eyes might miss, shoot two images, one horizontal, the other horizontal but upside down. Use Auto exposure. That will cause the wall to become middle gray in the resulting image. By shooting the second one upside down, you avoid biasing the test.

• Put both images into Photoshop. They will look amazingly blank and perhaps very even.

• Open the Curves control so you see the input/output 45° diagonal line that represents a 1:1 "curve."

• Slide the top right indicator to the left and the lower left indicator to the right.

The line remains straight, but it accounts for only a small amount of the center part of the image's dynamic range.

You have just changed the contrast range of your image into an extreme version of its former self. But in doing so, you are amplifying any tonal differences immensely. You would never do this to a real picture, but it will show you the light distribution pattern of the lens/sensor/processing combination.

An optical technician would expect a lens to create a circular pattern under these conditions with all corners showing the same amount of darkened vignetting. The very center of the image would be expected to be lighter. If the circle of light distribution were off to the right, the left side of the image would be darker. Moving the shadow indicator of the *Curves* control

will let you test the idea by degrees. If you are using Photoshop Elements, you can use the shadow anchor at the left side of the *Levels* control under the histogram in combination with the highlight anchor at the right to squeeze the dynamic range to see if your camera exhibits the phenomenon.

Remember that the pattern you see is WAY beyond what you will experience in virtually all photographs of the real world.

A series of iNovaFX Photoshop Actions is available on this CD for use in the full versions of Photoshop 6 and 7 to help reduce the impact of the effect.

They are called iDLSA and iDSLB. The A version is wider than the B version. Both can be tuned several ways to adjust their impact on your image.

Since you can intervene to change the Photoshop *Curves* value, they should fix any images that show the phenomenon.

If you are working with Photoshop Elements, try creating a soft brush about 1200 pixels in diameter and running it vertically centered along the left side of the image in *Dodge > Highlights only* √ mode at 10%. You may have to do this more than once to achieve perfection.

Only a small percentage of images will ever suggest that they need to be "corrected" in this way and the effect is virtually invisible in vertical shots.

ⓘ The entire "issue" of DLS has evaporated from the DSC-F717 camera.

Before and after iDLSA action filtering of a foggy Venice image. The very slight DLS measured 4% darker on the left than in the center of the image to start with. After treatment, they became even.

Chapter 10 iNovaFX Photoshop Actions

Supercharging the Digital Darkroom

Photoshop allows you to make Actions—each a sort of filter that orchestrates many Photoshop operations and settings. They're like macros on a word processor. Hours of trial and error, or inspiration and tweaking, can hide beneath a single button press.

The actions offered here are tools I use all the time. Some grew out of curiosity and others grew from immediate need. In general, you should have as much memory allocated to the full current version of Photoshop as you can spare, and you will have to load these ".atn" files into the Actions palette before you start (see pg. 10-20). Then open the image you wish to work on, and immediately save it under a *new* name so you won't cover over your original. Some, the Extreme Noise Reduction and Deep Dynamic Range actions, require you to layer images in a particular way before running them. Others work best on a certain type of image. They all invite experimentation.

ⓘ = InfoBite

ⓘ These actions do a number of memory-intensive steps. To open up internal memory space, you might purge the memory that Photoshop is controlling before running a complex action. The way you do this is *Image* > *Purge* > *All*. The iPurge action does this for you, and in general the iNovaFX Actions clean up after themselves by purging the History file of steps they have left in their wake. See the Photoshop manuals for performance tips.

ⓘ All iNovaFX Actions for the F707 work equally well with the F717's images.

ⓘ These iNovaFX Actions work only within the full version of Photoshop 6 and 7. They don't run within Photoshop Elements or other editing programs.

BARREL DISTORTION CORRECTION

These are the iBC707 series. They work on HORIZONTAL 3:4-ASPECT IMAGES ONLY, so if you have turned your picture vertical, put it back to horizontal before running the iNovaFX Action. If you try to use these with cropped images, you won't be happy with the result.

ⓘ The barrel distortion correction is computed to the performance of the 707/717 lens. Interestingly, you can use smaller than full-size images. Before correction, smaller ones will be enlarged to 2560 x 1920 pixels and will thus end up larger than their original size. Then you need to run one of the iBCReduce[x%] actions to drop them back to original size. A VGA original will return to original width by running the iBCReduce25 Action, for instance.

ⓘ You choose the correct action for the conditions of your image and simply run it with the full version of Photoshop. The image will do a series of operations in computer—some unseen—then suddenly drop back to where it started with the correction in place. It will be slightly *smaller* than full-size, because barrel distortion involves pinching it the opposite way it bent originally, then trimming to the maximum result. The trim throws away the distorted corners. Note that the middle of the top, bottom, and sides lose only about a pixel of information, but some detail in the very corners of the original will inevitably be outside the trim.

Before and after running the iBC707 Action on an image shot with the VCL-MHG07A wide conversion lens. Now the image is perfectly rectilinear and all straight lines are indeed straight—much desired for architectural and panoramic images.The tilt? That's a different story.

iNovaFX Barrel Correction Actions (iBC707/717.atn) 7 Actions

The actions are:	*Practical effect:*
iBC707WideZ	Corrects camera lens at widest zoom.
iBC707W+07Conv	Corrects Sony Wide 0.7X converter at widest zoom.
iBC707TeleZ	Corrects camera lens shot at full telephoto zoom (pincushion actually)
iBCReduce80	Returns 2048 x 1920 images back to original (trimmed) size.
iBCReduce50	Returns 1280 x 960 images back to original (trimmed) size.
iBCReduce25	Returns 640 x 480 images back to original (trimmed) size.
iBC2Taste	A convenient setup that lets you dial in the amount of Spherize +/- for your specific image. You will have to crop the resulting image yourself with the crop tool.

NOTE: Make sure you are using 3:4 aspect (NOT 3:2) not-cropped images to begin with.
Image is blown up (if it is smaller in its original file size) to 2560 x 1920 pixels, *then* corrected, then trimmed into the smallest size rectangle that can be achieved and scaled to 2560 wide by whatever narrow dimension remains. You must return the image back to appropriate size with the right iBCReduce[x%] action.

CHROMATIC ABERRATION REPAIR

Chromatic aberration happens when a red or blue or both color channels are graphically too large or too small. (The green channel is assumed to be correct.) It's caused by focusing different parts of the spectrum at different distances behind the lens—something you can't control directly. These actions slightly enlarge or shrink the color channel that is out of size and trim the picture by one or two pixels cropping it to its new continuous size.

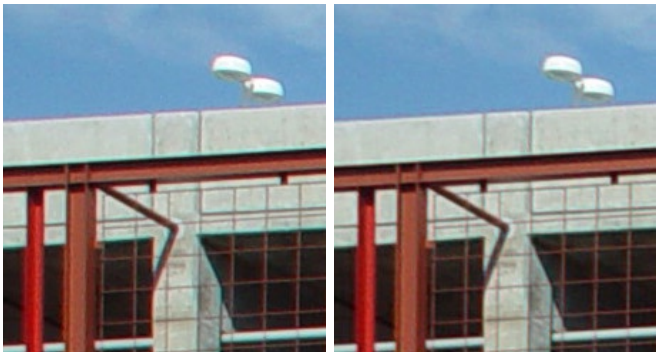
The iCrAb707 action series are made specifically for the unique characteristics of the DSC-F707/717 camera's lenses.

The Carl Zeiss lens is really quite well corrected, but under certain zoom settings, slight red/green chromatic aberrations can appear. These actions attempt to reduce them substantially so they would not become obvious in large prints.

Simply click on the appropriate action, and in a few seconds your image will feel better.

ⓘ These actions work on HORIZONTAL FULL-SIZE IMAGES only, so if you have turned your picture vertical, put it back to horizontal before starting. Then twist it back, later.

ⓘ Final files will be a few pixels smaller than they were to begin with. A small price to pay.



Detail blow-up from the corner of a 707 image photographed with a wide converter. The aberration is slight, so you will need to study this closely. Before and after running the iCrAb707 action on the image.

iNovaFX Chromatic Aberration Actions (iCrAb.atn iFlareDeColor.atn) 13 Actions

The actions are:	*For use in shots made with:*
iCrAbWide	Zoomed full wide.
iCrAbWide07	With Wide Converter VCL-MHG07 zoomed full wide.
iCrAbTele	Zoomed full telephoto.

The above actions do not address the "purple fringe" effect from extreme high contrast lighting. These may help:

iCrAbPurpX1	Reduces Purple Fringe chroma effect. Works on any size.
iCrAbPurpX2	Reduces Magenta Fringe chroma effect. Works on any size.

ⓘ Another series of 8 variants called **iFlareDeColor.atn** expands on this fringe chroma repair idea and includes a version that you can tune to the color of aberration that you see in your image. These work on any size image.

The top image was intentionally shot using the Incandescent white balance setting in bluer sunlight. The bottom image is an iCCSunnyShotIncan repair. No, it isn't a perfect color conversion, but if you never saw the incorrect image, you might never have guessed its history.

COLOR RESCUE

A friend and good photographer was lamenting that he had shot a bunch of images outdoors not noticing that he had left the camera in Incandescent white balance. It happens.

The all-blue and cyan images looked hopeless, but it turned out that they were salvageable with the right series of Photoshop steps. These iCC—**C**olor **C**orrector—actions are the memory of those steps.

The iCC actions have names that tell you what went wrong. iCCIncanShotSunny means incandescent *lighting* was shot as Sunny *white balance*. Images end up too gold.

Putting the image through this action is like putting an 80A (blue) filter on a camera loaded with outdoor film, then shooting indoors. Except with the 707/717, you get to put the filter on *after* the shot was made and no filter reduced the available light.

ⓘ The actions aren't perfect, but they're way ahead of looking like mistakes. You may have to tweak the image into perfection after running the action to cover up certain obvious shortcomings, but a surprising number of images will look very good after being fixed. The *Color Balance* control will help.

Light / Setting. That's the formula for the action's name. On the left, the light you shot in, on the right, the errant camera setting. Pick your error and click the mistake away.

Shooting in fluorescent light isn't a mistake, just a condition we are faced with from time to time. To take advantage of the iCCFluoro-series, shoot under fluorescent lights with the camera set to Sunny (Fine) white balance and run the appropriate action on these shots.

ⓘ If your shot has a neutral gray object in it, you can often fix much of the color with the neutrality eyedropper in Photoshop Levels or Curves by simply clicking on the target gray object.

ⓘ The DSC-F717's factory preset Fluorescent white balance may give you satisfactory results directly.

iNovaFX Chromatic Correction Actions (iCC707/717.atn)* — 5 Actions

The actions are:	*Image shot in -- light:*	*Camera set to:*
iCCIncanShotSunny100*	Incandescent Quartz light	Sunny/Fine. Best with ISO100.
iCCIncanShotSunny400*	Incandescent Quartz light	Sunny/Fine. Best with ISO400.
iCCSunnyShotIncan**	Direct Sun	Incandescent. **The most common error.**
iCCFluoro1ShotSunny***	Cool White Fluorescent	Sunny/Fine.
iCCFluoro2ShotIncan***	Cool White Fluorescent	Incandescent.

* Much available light shooting under incandescent sources is done at elevated ISO. Each of these color renditions are slightly different.
** When shooting with the DSC-F707, Flash exposures are considered equivalent to Sunny white balance.
*** The iCCFluoro series attempts to make images shot under Cool White fluorescent lights look more natural.
Cool White tubes are the most popular for offices, but neither 707 camera preset matches their color output.
Images shot in Sunny/Fine will look tan, and shots made with Incandescent WB will look greenish before being fixed.
All of these work at any size and any orientation. Extra variations are included.

ISO PUSH-PROCESSING

These create the effect of high ISO exposures from what normally would be perceived as greatly underexposed images. They're called iSO for convenience.

ⓘ To shoot in ISO 800 on the DSC-F707, set the camera to ISO 400, and intentionally *underexpose* with an EV correction of –1.0. The shot will be one stop darker than a normal exposure and will look dark on the camera monitor, but metering will be consistent with ISO 800. To shoot ISO 1600, set the camera to EV –2.0. For good looking final images (and I realize how subjective "good looking" can be), this represents the practical limit of electronic "push" processing. But when did we ever stop at the mere practical?

ⓘ The very lowest tones in the dark end of the scale have trouble tracking accurate blue, red, and magenta hues. Grain will build up. But unlike film that has been push-processed, the darkest part of the image will remain perfectly black.

ⓘ To shoot low-contrast subjects at ISO 2000 to 3200, you will have to use the full Manual mode on the camera. Find the appropriate exposure (0.0 EV indicator), and then click three full stops of faster shutter speed (or combined three-stops of less light including adjusted aperture). Remember as you are clicking that each physical click is only 1/3-stop, so a three-stop adjustment is actually nine clicks of the Jog dial.

ⓘ These severely underexposed images in the camera will look very, very dark. Only when you run the appropriate action on them will they perk up into useful shots. Since color detail is first to be lost, very high ISO images actually benefit from being made as B&W, either as they're being exposed (*Menu* > *P. Effect* > *Sepia*) or later by using Photoshop's *Hue/Saturation* control to drain the color out by moving the *Saturation* slider to zero. For such high ISO images, the iNovaFX B&W actions (described later) offer near zero advantage.

The image on the top is directly from an F707 in mixed artificial light. The image on the bottom is the result of running the iISO2Taste action which allows tunable brightness and color recovery. An amazing amount of color is retained even in dark shadows.

With high ISO, more grain and contrast appears. ISO 3200 may not be the absolute limit, but it represents a practical limit for images that will please. Just so you can experiment, an action called "ISO To Taste" will tell you right on the Photoshop screen how to manipulate it for best effect.

One action, the iSOfix-OneStopOver, can be used to bring an image into normal values even though it has been shot up to one stop overexposed. This represents about the practical upper limit on overexposure recovery.

ⓘ It is better to slightly underexpose than overexpose a digital image.

These actions work on any size image at any orientation. The iSORecover.atn folder holds more actions than are listed here. A number of variations are provided for your experimentation.

iNovaFX ISO Boost Actions (iSOFix707/717.atn) — 8 Actions

The actions are:	*For use in shots made with:*	**most often effective*
iSO2Taste*	Any underexposure. Allows color adjustment. Tunable.	
iSO800	Shot EV-1.0. One stop underexposed.	
iSOfix-under1stop	Shot EV-1.0. Variation.	
iSO1600	Shot EV-2.0. Two stops underexposed. (Caution!)	
iSOfix-under2stops	Shot EV-2.0. Variation.	
iSO3200	Shot EV-3.0. Three stops underexposed. (Danger!)	
iSOfix-OneStopOver	Any overexposure up to one stop too bright. Tunable.	
iSOShadowChroma+	For an underexposure showing low color in shadow areas.	

COOLER/WARMER

iCF Cooler/Warmer.atn folder.

This is just a pair of symmetrical actions that slightly cool (bluer) or slightly warm (golder) the image with each application. They can be applied several times, if need be, to adjust the color of mixed lighting conditions. The images show 2 clicks cooler on the left, normal in the center, and 2 clicks warmer on the right.

EXTREME NOISE REDUCTION

Not all pixels are created equal. Each one is its own electronic circuit and some of them fail to report what they saw as accurately as their neighbors. Some few of them fall apart at very long exposures and show up on the image as bright spots of varying brightness. Often called *blown* pixels, most are just extremely noisy pixels revealed by time exposures.

The DSC-F707 has built-in noise reduction (NR) on all exposures *longer* than 2 seconds. In spite of this excellent system, it is still possible to have poorly-performing pixels dotting randomly across a 2 sec exposure. The remedy is to shoot a high-ISO, 2-second exposure with the lens *sealed* from ambient light. The supplied lens cap—tightened—should be enough in a dim area. This blank shot becomes a special *flaw frame* that you can use for masking dotted pixels in subsequent long exposures. File it away in a safe place on your computer. The F717's NR kicks in at 1/25 sec so it won't need this technique.

At ISO 400 in the F707 @ 2sec, some pixels fail. View this at 200+% to see the sprinkling of white dots in the shot on the left. The iFFLum2 action was used to produce the noise-free shot on the right.

A 30-second exposure will actually reveal *fewer* flaws since it invokes NR. Since many long-ish exposures are in the 1/8 to 2 sec range, the flaw frame technique fixes their blown pixels best and eliminates any and all blown pixels from very long exposures, too.

ⓘ You must stack the Flaw Frame *over* the original image in Photoshop before you run the action. This produces a stack with the original as the Background layer and the Flaw Frame in the Layer 1 position just above it.

ⓘ These actions are made for full-size images, only. Images smaller than full frames will have their blown pixels scaled down making them not repairable.

ⓘ Note: The 707's imager is susceptible to noise from *heat*. A very warm camera may produce extremely noisy, grainy images. If you shoot long exposures at over 85° F (30° C), capture a 2 sec flaw frame along with your shots. The camera's NR will control noise from heat on longer exposures, but heat can show up on images before NR becomes automatic, and it can exacerbate the presence of isolated pixel flaws.

iNovaFX Noise-Correcting Flaw Frame Actions (iFlawFix707.atn) — 8 Actions

The actions are:	*Descriptive guide:*
iFFLum 1	Basic luminance technique.
iFFLum 2*	Smooth grained exaggerated luminance technique.
iFFLum 3	Aggressive luminance technique.
iFFRGB 1	Basic RGB technique. Each color channel handled separately.
iFFRGB 2*	Stronger RGB technique. Separate Channels. For problem pixels.
iFFRGB 3	Aggressive RGB technique.
iFFRGB 4	More aggressive RGB technique.
iFFXtreme	The MOST aggressive version. Can soften detail. Caution.

*most recommended

GLARE ENHANCEMENT

In the real world, highlights are often piercingly bright. In photographs of all kinds, the extra brightness of these spectral highlights is lost. To your eye, that sun glint or reflection may be dozens of times brighter than the rest of the scene, but you can't see its extra brightness in a print, slide or digital image.

With diffusion or crosstar filters, the extra brightness of spectral highlights spread out from the light or glint. Cinematographers are especially sensitive to this, and by using low value diffusion filters, they can make very bright areas glow in a way that tells our eyes that the details demonstrating the glow are extra bright.

The tiny spectral white highlights of digital images can look a little strange. Sometimes the in-camera sharpening puts a contrast line around them giving the look of a thin black border around the very brightest white highlights. In many images this isn't a problem, but for some, it looks simply wrong. The iGF actions attack *only* these highlights.

Seven different iGF, (**G**lare **F**lare) actions are available. They each give a slightly different effect, so you should try each of them out on several photos and see which ones suit you best.

Primarily, they add a bit of soft expansion to the "trapped highlights" that camera sharpening produces without affecting the lower tonalities *at all*. The weakest ones simply reduce the surrounding black outline. The strongest versions give the appearance of a low-value fog or diffusion filter and produce an ethereal soft highlight effect.

The iGF7 action actually goes the extra distance and produces a halo effect similar to the more exotic diffusion filters used in cinematography.

Eight iCrosstar Actions are here, too. They make crosstar effects that are much more controllable than the glass or plastic filter variety.

These actions work on any size image at any orientation. All of their activity is limited to the top 2% highlight range. All are tunable, so you can change their opacity or access to their gamma and tonal curves without affecting the original scene. iCrosstar5 allows each streak to be separately tuned, colored or changed.

iNovaFX Glare Flare / Crosstar Actions (iGFGlareFlare.atn, iCrosstar.atn) 15 Actions

The actions are:	*Practical effect:*
iGF1	Precise removal of surrounding dark line. The weakest variation.
iGF2	Small amount of flare extends past highlight.
iGF3 - 6	Modest flare increasing with higher number.
iGF7	Strong halo flare surrounds original highlight. Tunable. Can be colorized.
iCrosstar1-5	Crosstar effects, 45°. Effect layer(s) can be tuned to taste.
iCrosstar30° / 15°	Tilted crosstars. Variations: Mirror/Flip/Rotate image. Run. Re-level image.
iCrosstarHex	Six pointed crosstar. Usually best at lower intensities.

COLOR RESCUE AND RECOVERY

They're called CRV for "**C**olor **Re**V**e**ctor." They steer the colors back to a more natural, less-distorted result.

Perhaps the most often used version is the red eye fixers, the iXRedEyeSetup and iXRedEyeFast actions. Simply open up any image with a red-eye effect showing in the subject's eyes, and run the iXRedEyeSetup action. It will guide you through your first steps and may even complete your whole photo.

ⓘ The iXRedEyeFast action can be used when you don't need to setup the mode. With it you can select one eye or a whole group of eyes at a time for fixing.

ⓘ Certain colors can fool the Sony DSC-F707 sensors. Certain magenta/purple and border-line teal and green colors are portrayed slightly differently in prints. The iCRV707tweak action gives you a choice of corrections that move the colors closer to where your eyes saw them.

ⓘ iCRV's aren't for every photo, to be sure. Images with strong, high chroma bright colors from nature, such as flowers, can benefit from them. You may have to test run these actions on a photo to find the one that best suits your shot. Fortunately they are fast. Be prepared to *Undo* or back up in the *History* window when they don't quite achieve the results you seek, then try another.

Two other revectors are here.

iSodium1-3 causes images shot under sodium streetlights and area lights (as are often found on airport tarmacs and parking areas) to look more natural.

iRescueFadedTrans variations may help revive old, faded transparencies. You may need to tweak rescued images and not all faded images will improve with this action, but if it helps, it helps.

iNovaFX Color ReVector Actions (iColorReVector/XRed-Eye.atn) — 9 Actions

The actions are:	*Practical effect:*
iXRedEyeSetup	Initiates red-eye removal mode. You must use Oval Tool, select eye, re-run action.
iXRedEyeFast	Quickly pulls the red out of any already selected eye(s).
iCRV707Tweak	Revectors normal image to more accurate result.
iSodium1	Revectors image shot under Sodium (yellow) street/area lighting.
iSodium2	Revectors image shot under Sodium (yellow) street/area lighting. Variation.
iSodium3	Revectors image shot under Sodium (yellow) street/area lighting. Variation.
iRescueFadedTrans1	Rescues faded transparencies. Pinkish original variation.
iRescueFadedTrans2	Rescues faded transparencies. Magenta original. Higher contrast variation.
iRescueFadedTrans3	Rescues faded transparencies. Magenta original. Lower contrast variation.

JPEG ARTIFACT REDUCTION & CHANNEL DENOISE

Artifacts are the undesired side effects from some other, desirable operation; the negative consequences from doing something good. JPEG compression produces artifacts. In the Sony DSC-F707, compression is well-controlled, becoming readily visible only in extreme cases. Compression artifacts are more obvious in the red and blue channels, as are other forms of noise.

ⓘ The first three actions let you selectively reduce noise in the blue and red. You might have to run these more than once in extreme cases.

ⓘ The iDeJPEG action does a good job on *Standard* compressed images. Especially ones that have been saved in your computer at very high compression settings. If you shoot as I do, to gather a maximum number of images using *Standard* compression, you can run this action later if compression artifacts show. Usually they won't show at all. Remember that JPEG artifacts tend to get lost on prints. You probably won't even see them on images printed at 8 x 10 and smaller.

ⓘ Images that are reduced before printing lose artifacts naturally in the down-conversion process and won't need this.

iNovaFX JPEG Artifact Reduction Actions (iColorDeNoise/DeJPEG.atn) — 10 Actions

The actions are:	*Practical effect:*
iColorDeNoiseA, B, C	Degrees of color noise improvement.
iColorDeNoise2 & 3 series	5 Variations. The 3 series is highly evolved.
iPrimaryBoosts	Lifts red, green and blue primary colors only. Only needed if these suffer.
iDeJPEG	JPEG artifact reduction/grain replacement. Roughly equivalent to removing Basic compression's artifacts to Normal's level.

AERIAL IMAGE RECOVERY

Images shot from an airplane often have as much sky between camera and scenery as we see in the canopy of sky from the ground, hence all that extra blue. These two actions, both tunable, recover a much more normal view of the ground. Since the contents of the atmosphere change from hour to hour, you must decide how much correction to keep or discard.

ⓘ Use the *Opacity* slider on the upper layer to dial-in the amount of correction needed.

ⓘ It is often best to leave in *some* of the sky effect to create the suggestion of a high or distant aerial viewpoint.

iNovaFX Aerial (AerialShotCorrection.atn) — 2 Actions

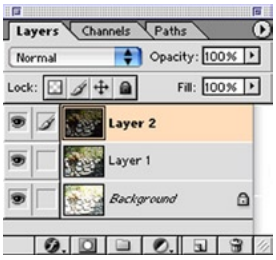
The actions are:	*Practical effect:*
iAerial2Taste	Recovers ground colors from high aerial images shot over 12,000 ft (3,500m).
iAerial2TasteLow	Recovers ground colors from lower aerial shots.

DYNAMIC RANGE EXTENSION

With the iDR series, a new kind of image can be built. I say "built" because it is created from three separate exposures, each up to *two stops* apart from each other. The camera must be *absolutely* rigid from shot to shot, so a solid tripod will be required. The subject must be non-moving over the span of exposures. Slow moving clouds are okay, but fast moving features like vehicles, flags, animals, waves, hurricanes or kids will give poor results. The trick, in any case, is to shoot all three images very close together in *time*. The *Menu* > *Rec Mode* > *Exp Brktg* (bracketing) mode will do the job if the *Set Up* > *Bracket Step* > *±1.0EV* option is in force.

By combining the range of exposures into one shot, greater tonal dynamic range and color depth is achieved. No simple chroma boost can do the same. During the run of each iDR707 Action, you have the opportunity to adjust image levels and color saturation. Each of these were tuned to a different result, but the +/-2 stop version will inevitably retain greater range and color dynamics. View these samples close-up.

ⓘ With the 707/717, the fully manual mode makes this process go quickly and efficiently. The single biggest requirement is that all three images be in-register, meaning that they stack on top of each other exactly. It is NOT possible to do this hand held.



ⓘ The auto bracket feature (*Exp Brktg*) in The 707/717 will greatly simplify gathering images.

The three shots are then brought into Photoshop and stacked over each other with the darkest on top and the lightest on the bottom.

At that point, simply run the action and wait for the result. The normal dynamic range of the middle image is now extended two stops upward and two stops downward by the action of the underexposed and overexposed elements.

You will be given the opportunity to adjust *Levels* (Highlight, Gamma and Shadow values) and then *Saturation*. The *-Lab* variations preserve color extremely well. So well, in fact that you must reduce Saturation to achieve accuracy.

There are four variations. iDR707 actions work equally well with the Sony DSC-F717 camera.

As you can see in the examples, the normal, centered exposures (strips B & D on each) on a contrasty scene will lose highlight and shadow detail. As you work with them, you will discover how to balance the *Levels* and *Hue/Saturation* for your image's needs.

ⓘ Try this with a colorful subject you can re-inspect shortly after you have performed this technique, and observe how it matches to life's actual tonalities and color depth.

iNovaFX Dynamic Range Actions (iDynamicRangers.atn,) 4 Actions

The actions are:	*Practical effect:* *best for general work.*
iDR707+/-1	Camera -1/0/+1 EV bracket extends range. Tunable in Levels and color.
iDR707+/-1Lab	Camera -1/0/+1 EV bracket Lab Color mode. Greater range.*
iDR707+/-2	Camera -2/0/+2 EV bracket. Tunable in Levels and color.
iDR707+/-2Lab	Camera -2/0/+2 EV bracket Lab Color mode. Greatest range.*

SPECIAL EFFECTS PRODUCTION

An entire cosmos of special effects plug-ins is built into the full version of Photoshop. But isn't that the problem? You open a filter for the first time, and several adjustable controls are staring you in the face with control names like *Brush Size, Length, Radius, Balance, Sharpness, Edge Simplicity, Range, Detail, Grout Width, Threshold, Scaling, Cell Size, Glow Amount, Paper Brightness, Highlight Area, Magnitude, Definition* and many others. Where do you start?

Weaving through this maze can be daunting. The iPSxxx iNovaFX Actions show off these plug-ins by representing sane choices. You can often undo and re-perform the plug-in filter with new adjustments if these choices don't match your desire. Each iPS folder of actions is based on the similarly named folder of plug-in filters in Photoshop. Not all Photoshop plug-ins are represented, just the ones that have variables that need to be selected.

iPSSketch.atn group's iStampArt Action at work.

ⓘ Many iPS actions include extra steps, combinations of other controls, and/or marriages with other plug-ins to achieve their effects.

ⓘ Nearly all of these actions clean up after themselves by purging the memory-hungry History file. If memory becomes a problem in Photoshop, try *Edit* > *Purge* > *Histories* to free up memory space. If you wish to *avoid* purging this list, disable the Purge. In list mode, expand the list (click the triangle) and uncheck *Purge*. It will be near the bottom of the list.

iNovaFX Special Effects Actions (iPSxxx.atn series) — 8 Folders with 94 Action Variations

The action folders are:	*Practical effect:*	
iPSArtistic	19 Filter presets from the Artistic Filters collection.	Many Undo-able.
iPSBrushStroke	7 Filter presets from the Brush Stroke Filters collection.	Most Undo-able.
iPSDistort	18 Filter presets from the Distort Filters collection.	Many Undo-able.
iPSNoise	2 Filter presets from the Noise Filters collection.	Both Undo-able.
iPSPixelate	2 Filter presets from the Pixelate Filters collection.	Both Undo-able.
iPSSketch	29 Filter presets from the Sketch Filters collection.	Most Undo-able.
iPSStylize	12 Filter presets from the Stylize Filters collection.	Some Undo-able.
iPSTexture	5 Filter presets from the Texture Filters collection.	Most Undo-able.

COLOR NEGATIVE DEVELOPMENT

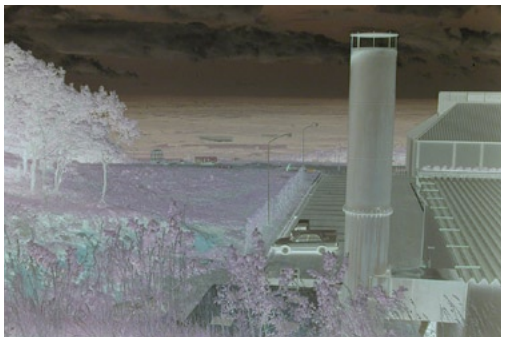
If you have an accessory slide copier, you will eventually ask yourself, "Hmm, I wonder if I can shoot a color negative into the camera and then get a good looking color picture from it with a few post production steps?" There is a trick to this along with a warning, of sorts.

The trick is to get the white balance right. Auto white balance works fairly well, and white balancing from a dark image (therefore mostly clear orange) works a little better. But it changes from shot to shot.

White balancing off the negative *image* of a gray card works best. Be aware that it will take just as much post-processing effort to finish the shot digitally as it would to print a color negative. Except that on your computer you can see it coming together at every stage. *Curves, Levels, Color Balance*, and *Hue/Saturation* controls are needed to finish every shot.

The actions here are the major tools for working with a negative image. They'll get you roughly into shape, but you will have to finish the job on your own.

You may notice that strong colors are exaggerated in the image coming from an inverted negative. That's why the iNegHighCrReduce action exists. It attacks ONLY very high chroma areas of the image.



iNovaFX Film Negative Development (iColorNegProcess.atn) — 4 Actions

The actions are:	*Practical effect:*
iNegRoughConvert	Inverts and roughly corrects image from color negative.
iNegLowContrast	Lowers the contrast of the result.
iNegPerkContrast	Heightens the contrast of the result.
iNegHighCrReduce	Reduces chroma of high-chroma areas of the image *only*.

COLOR TO B&W FILM CONVERSION

The first B&W films were blue sensitive and red blind. That's why old, old photos can look so odd in their tonalities. The early photos often made people look perpetually sunburned. Panchromatic film improved the look of B&W images by including a fuller spectrum of color response, but all B&W film has its signature response to the color world. Your camera can suppress its color and give you *P. Effect* > *Sepia* images, but it doesn't respond to the world exactly the way B&W film does.

ⓘ Photoshop will let you drain the color from your image in the *Hue/Saturation* control. The *Lab color* mode will let you isolate the L, luminance, channel which looks like a B&W photo. But neither of these have the substantial look of B&W *film* images, because their spectral response is so very flat, and B&W film's spectral response is not flat at all.

These actions change all that. Six versions give you variations of color response the way B&W film formulas do. They are not tied to specific matched film emulsion characteristics the way some B&W conversion actions are, but they give plausible and pleasing results that are a definite improvement over simpler methods.

To use them, prepare your color image in the standard way. Shoot for a good-looking, correctly white-balanced image. Then run the iBW action of choice. Note that some are fine for people colors and others simply are *not*. iBWFilmFX2 works best with scenics, for instance but not with all skin tones.

ⓘ If you wish to simulate the look of a light color filter on a camera loaded with B&W film, tint the color image *before* conversion. The iBWColorGel action facilitates this dramatically and produces the B&W result.

After conversion, you still have the opportunity to change *Levels* and *Curves, Burn, Dodge,* or manipulate the image any way you wish. Who said B&W was simple?

iNovaFX Black and White Film Spectral Conversion (iB&WFilmEffects.atn) — 7 Actions

The actions are:	*Practical effect:* *best for people pictures
iBWFilmFX1	Converts color image to B&W with blue/green emphasis. For landscapes.
iBWFilmFX2	Converts color image to B&W similar to high ISO, contrasty, grainy film.
iBWFilmFX3*	Converts color image to B&W similar to average panchromatic film.
iBWFilmFX4*	Converts color image to B&W similar to Tri-X. Grain free.
iBWFilmFX4g*	Converts color image to B&W similar to Tri-X. *Adds grain to shadows.*
iBWFilmFX5*	Converts color image to B&W red brightening. Lab mode.
iBWColorGel	Sets up a color effect as if the camera had a filter on it during exposure.

ORIGINAL DIMROOM EFFECTS

I've said it before; it's not a darkroom any more, it's a dim room that doesn't glare on your computer monitor. But it easily does some things that are difficult (read: impossible) to do in a darkroom. Take these, for instance.

The LumiBloom actions seem innocent enough, until we discover that they are multi-layered effects that produce artificial fog or pull detail out of highlights without affecting shadows.

Then there are the variations on the BloomArt effect. A graphic technique that turns a photo into a somewhat abstracted graphic. These can rescue slightly misfocused images, turning them into artistically sharp airbrush and ink results.

In the contemporary world of B&W photography, a midtone-emphasizing technique has become recently popular for illustration photos. The FleshTona action orchestrates this effect for your images. Try it gamma-adjusted variations of an image to get a feel for its sweet spot.

All of these actions can be manipulated after the fact to your exacting standards. They work with any images.

iNovaFX DimRoom Art Conversion (iDimRoomArt.atn) — 7 Actions

The actions are:	*Practical effect:*
iLumiBloom1	Creates low contrast fog-like effect. For landscapes.
iLumiBloom2	Fog filter that does not affect shadows. Removes wrinkles. Tunable.
iLumiBloom3	Fog filter that does not affect shadows. Blooms upper tones. Tunable.
iBloomArt1	Bloom Art effect mixes photo with graphic lines. Tunable.
iBloomArt2	Bloom Art effect mixes photo with graphic lines. Curves adjustable.
iBloomArtInterActive	Complex Bloom Art effect. Multi-tunable. Self-explanatory.
BWFleshtona	Complex B&W effect emphasizing mid tones. Multi-tunable.

COMPLEX ART EFFECTS

Digital photos are immediately available for artistic interpretation. These actions orchestrate a series of steps that result in images that are often mistaken for art, painting, and illustration. Some are tools to be applied before or after running others. Not all photos work well with all actions, so a spirit of experimentation and discovery helps.

ⓘ If the textures in images on this page look odd on your monitor, try viewing them at 200% or 400%.

ⓘ Some effects look a whole lot better as a print. One way to simulate that in your eye is to view a portion of the image at 100% scale on your monitor and step back a couple of yards. You can't see it all, but at least how the textures look to scale.

ⓘ Generally, these treated images look best as a very large print, tabloid or A2 paper size or larger.

The image at left (*Strikers*) is best viewed at maximum enlargement to see the scale of canvas texture and paint-like color overlay. The candid portrait, above, uses an action that purposely lowers detail and enlarges the effect of painted strokes.

iNovaFX Very Complex Art Tools (iComplexArtFX.atn) — 23 Actions

The actions are:	*Practical effect:*
iAngledStrokes1&2	PS Angled Strokes effect basis. Creates basic painting.
iAngledStrokesPainting	Angled Strokes Painting with bolder brush strokes.
iHighlightTexturizer&Lite	Tools that add color grain into highlights only. A preparation for other effects.
iCanvasPainting1	Strokes, Canvas, and Conté Crayon in concert. Tunable.
iCanvasPainting2-5	Variations. Brush strokes in highlights.
iLandscape1-3	Painting variations with detail overlays. Particularly good with landscapes.
iWaterColorPainting	High-technique watercolor effect. Completely surprise finish!
iWaterColorPaintingEQ	High-technique watercolor effect. Special low-contrast result.
iWaterColorIllusration	High-technique watercolor effect. Illustrative balance.
iColorDream!	Sudden Tropical Warming trend. Tunable.
iColorBlast	Color expands out of its boundaries. Sharpness unaffected. Tunable.
iContrast(UM)1	Tool to increase local contrast areas. Uses Unsharp Masking. Undoable.
iContrast(UM)2	Tool to increase local contrast areas. More aggressive effect. Undoable.
iPencilSketch	Pencil Art version of image. Not for people images!
iKodaChrome1&2	The memory of Kodachrome from 1954. Or Kodachrome II from 1976.

EXOTIC EFFECTS

Beyond complex lies the realm of the truly exotic. These include things that you have every right to believe simply could not be created in a Photoshop Action. But as this group of iNovaFX actions shows, Photoshop can rise to some pretty exotic extremes.

Framed Again!

iFilmBorders.atn contains a whole category of actions that drape a graphic border around your image in a way that produces the effect of an isolated frame of film. Many photographers like to show the 35mm, 2-1/4, or 4x5 film frame intact with the image—a sort of proof that they got the image onto film exactly the way they wanted. No cropping or darkrooming was needed. But in this digital age, this practice has a different way of coming into being.

Take a 3:2 cropped shot, of any pixel width—it's not critical—run the iBorder35 iNovaFX Photoshop Action from the iFilmBorders.atn group, and in very short order you will have surrounded your image with sprocket holes and edge markings that look like 35mm film. Shot on iNovaChrome (you can edit the "film" name).

With 2-35mm variations, a 2-1/4 roll film series, and even a 4x5 sheet film version, hours of play and printing await you as you create images that give new meaning to the words, "digital film." There's even a roll film group that adds plausible *edge fog*!

Help Stamp Out Digital Photos

iStampBorders.atn creates the perforations around your image that it would have as a paper stamp. You need to start with a horizontal image, but the action will automatically size, border, perforate, and flatten your image into an appropriate drop shadow.

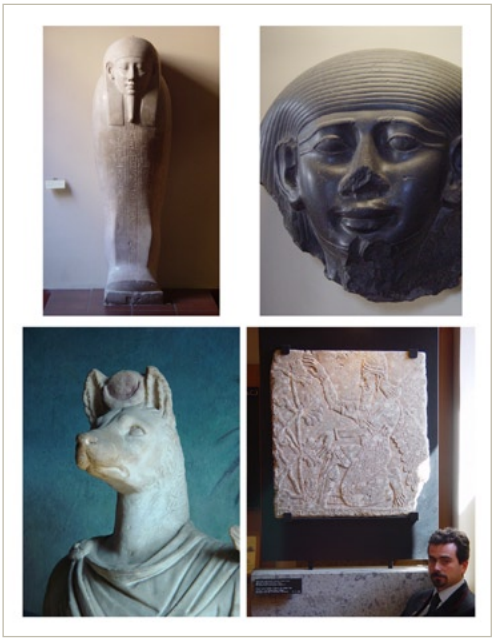
Three sizes are available. Don't forget to add the type that will complete the faux stamp effect.

ⓘ Do NOT try to fool the Post Office. They won't be amused.

iNovaFX Exotic Effects (iFilmBorders.atn & iStamp Borders.atn) — 11 Actions

The actions are:	*Practical effect:*
iFilmBorders.atn:	
iFilmBorder2.25x3.25	Roll film border like 60 x 85 mm film. For horizontal images.
iFilmBorder+Data	Roll film border with data type line that you can modify.
iFilmBorder+Data+Fog	Roll film border with modifiable type and edge fog effect.
iFilmBorderUniversal	Roll film border with many options. Even makes squares.
iBorder4x5Horiz	Sheet film border. Sizes for any size originals. Horizontal only.
iBorder4x5Vert	Sheet film border for images in vertical format. ID notches at top.
iBorder35	35mm film border. Type editable. Frame is cut *between* sprocket holes.
iBorder35+	35mm film border. Type editable. Frame is cut *through* sprocket holes.
iStampBorders.atn:	
iStampBorderSmall	10 x 13 perfs. Horizontal only. Image scales automatically.
iStampBorderMedium	15 x 20 perfs. Horizontal only. Best to start with 3:2 image.
iStampBorderLarge	22 x 28 perfs. Horizontal only. Image scales automatically.

Borders in 35mm and 4x5 formats are FORCED to appropriate large size before processing. You could use large or small files and the result would be the same size. You may wish to re-size these after running the action.



PRINTING UTILITIES

Photoshop 7 finally allows putting several different images in its dandy *File* > *Automate* > *Picture Package* utility, but what if you want a quicker way of making a page of four small prints per letter-size page? The iNovaFX iFourPrint.atn group lets you simply open four images in either horizontal or vertical orientation and have them all become quadrants of a four-part page. The example, left, was made of mixed sizes and crops.

Further, the order in which you open them determines their reading order, just like a storyboard or comic book page. You can cut them apart later, or keep them together as a single page. Both US letter page and world standard A4 pages are accommodated.

Taking this idea a major step forward, the iMulti16Shot.atn group has two more actions that arrange any 16 images into a closely knit panel of VGA-resolution images in a 4 x 4 comic-page reading order single image. Final pages are 2560 x 1920 pixels. One version exists for horizontal, the other for vertical originals. This sort of mimics—with individually selected, higher resolution images—the DSC-F717's MultiBurst mode.

ⓘ A good way to organize this idea is to select your 16 images and throw duplicates or aliases of them into a new folder. Then either open them in the order you want to see them in print, or give them names like 01, 02, 03... 15, 16. Once numbered, you can visualize the display order of the final, or pull them into photoshop in one load operation. Photoshop 7's Browser function makes short work of the idea. With the files all open, perform any iShadowLift or iCC color corrections before running the iMulti16.

Both of these utilities create a very high resolution result. It's a pixel-perfect 5-megapixel image and each smaller image is at maximum detail on the printed page. You can print it out quite large if you wish.

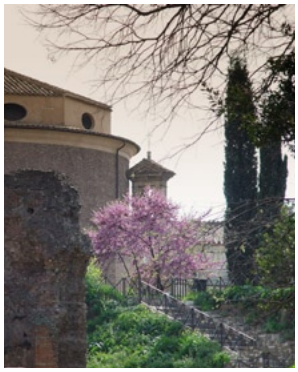
A day in the life. One can read this photo essay like a comic book and in a single print, one can get a very good idea of how the files will translate to the printed page. iMulti16H.

iNovaFX Printing Utilities (iFourPrint.atn & iMulti16VGA.atn) — 4 Actions

The actions are:	*Practical effect:*
iFourPrint707.atn series	
iVertX4.	Four images become one page. Vertical originals only.
iHorizX4.	Four images become one page. Horizontal originals only.
iMulti16VGA.atn series*	
iMulti16H	Page with 16 VGA-scaled images is created. All must be horizontal.
iMulti16V	Vertical 16 shot version. All must be vertical images. Page "reads" vertically.

*iMulti16 instructions appear in the folder. Not as actions, but one each for H and V pages.

FILTRATIONS, DLS & PRINTING TINTS



Ever wish you could shoot with a graduated neutral density filter that cut the extra brightness out of sky areas without darkening the lower parts of the picture? Cinematographers wouldn't leave home without their set of square grad filters, and still photographers—including me—treasure their grad filters from Cokiin. With the iSkyGradFilter.atn set you can shoot now and filter later.

Neutral (no color), slightly warm and slightly cool versions are available in two functionally different versions each. That's the warm version operating on the bright sky image at the right. Try them all. We've made them interesting.

Some DSC-F707 cameras have a "Dark Left Side" shading, commonly called "DLS." These two A and B iNovaFX actions deal with it in broad strokes and let you fine tune the results. Most shots don't need fixing, but if yours does, here's help.

Printing monochrome doesn't always mean Black and White. Photographic artists have a whole repertoire of subtle colors for tinting B&W prints, and now, so do you. The statue at right uses iTintCool for its subtle effect.

Versions are available in four major colors, Cool, Warm, Metal and Green. These colors are selectable in three variations each.

One variation lets you pick tint hue, strength and depth yourself. A superior Sepia version completes the set.

Not all ink-jet printers do a superior job with monochromatic images, but if yours does, these actions will provide a nice sense of variety.

iNovaFX Printed Filtrations (iSkyGradFilter.atn, iDLS707.atn & iB&WPrintTints.atn) 14 Actions

The actions are:	*Practical effect:*
iSkyGradFilter.atn series	
iSkyGrad (neutral A&B)	Shades top of image like neutral density graduated filter. Two versions.
iSkyGrad (warm A&B)	Gradual warm (redder) filter effect. Two versions.
iSkyGrad (cool A&B)	Gradual cool (bluer) filter effect. Two versions.
iDLS707.atn series	
iDLSA	Dark left side removal. Tunable. For full-size horizontal images.
iDLSB	Dark left side removal variation. Tune to taste. Horizontals only.
iB&WPrintTints.atn series	
iBWCool	Cool Duo-Tone in White/Medium/Dark variations.
BWWarm	Warm Duo-Tone in White/Medium/Dark variations.
BWMet	"Metal" Duo-Tone in White/Medium/Dark variations.
BWGrn	Green Duo-Tone in White/Medium/Dark variations.
BWTint2Taste	You-manipulate the Duo-Tone color and intensity
BWSepia1	Dark sepia tone you can manipulate to taste.

THE MISCELLANEOUS GROUP

These are single-concept actions that have occasional uses. Here you will find the faded, ancient photo effect that goes beyond simple sepia toning. The texture and aging of the paper itself is simulated to look like elderly photographic material that has had years to weather the onslaughts of oxygen and light.

Want a *grain free* image? Combine a stack of three to six exposures made in-register, and all noise will cancel out using the iFrmAverage series. Great for making high-ISO images into noiseless shots, too. Tripod and external triggering (or self timer and *Burst 3* mode) required.

Need that over-processed, digitally rescued look for effect? Try the RetNarRators and stand back. They're a series of actions that simulate the look of a NASA digital image enhancement technique.

Need a panacea? An action that just makes *everything* better? It's here. The iMprove Actions contain a combination of local contrast, sub-pixel sharpening and color boost.

The iColorDeNoise.atn actions for Photoshop 7/6 can be found on this CD as well. They do a very good job of smoothing out *color* grain, but be aware that they slightly reduce the fine detail of narrow colored objects. These actions first find image detail along contrasty edges, lift the zones of detail, smooth the color structure of the image, then replace the detail back to the place it originated.

Here, too, you will find the ability to "polarize" blue skies that were shot *without* a polarizing filter. Seven variations add considerable drama to your images and let you zero in on sky colors without contaminating other shades of blue.

iNovaFX Miscellaneous Effects (iFX, iFrameAverage, iPolarizeSky, iSharp) 30 Actions

The actions are:	*Practical effect:*
iFX.atn: *	
iRetNar1Lg	Overprocessed digital effect similar to Retinex™. 2 or 3 meg image.
iRetNar2Lg	Overprocessed digital effect similar to Retinex™. 2 or 3 meg image.
iRetNarHaze1Lg	Super haze/smoke reduction similar to Retinex™. 2 or 3 meg image.
iRetNarHaze2Lg	Strong haze/smoke reduction similar to Retinex™. 2 or 3 meg image.
iRetnART	Tunable iRetNarHaze effect with soft bloom.
iOldTymie	Extremely abused old B&W image + paper discoloration. Any size.
iOldTymieDistressed	Adds texture. Needs extra time and memory.
iMprove1 & 1/2	Panacea actions. Try them. Full and half-strength.
**iFrameAverage.atn: (In-register images from tripod + remote trigger only. *Burst 3* mode helps.) **	
iFrmAverage-6	Stack of 6 in-register shots averaged. Reduces noise/grain like crazy.
iFrmAverage-5	Stack of 5 in-register shots averaged. Reduces noise/grain extremely well.
iFrmAverage-4	Stack of 4 in-register shots averaged. Reduces noise/grain very well.
iFrmAverage-3	Stack of 3 in-register shots averaged. Reduces noise/grain quite well.
iPolarizeSkyFX6.atn:	
iPolar1, -2, -3, -4, -5	Turns sky darker and more dramatic. iPolar5 is strongest.
iPolarPale	Turns sky darker and more dramatic. Works on palest skies & around clouds.
iPolar2Taste	Turns sky darker and more dramatic. You tweak to your liking. Nice.
iSharp.atn:	
iSharp...(11 variations)	Multiple ways to sharpen images with low artifacts.

* Retinex™ is a patented process. This merely simulates much of its look using Photoshop's built-in tools. You will need to tweak most images further for final results. Look for *http://dragon.larc.nasa.gov/viplab/retinex/*

** Some mages shot in sequence do NOT fall in-register due to small movements that offset the shots a pixel or so. The best results come from *Burst 3* frames. Tripod mandatory. Self timer or remote release are helpful.

SHADOW & HIGHLIGHTS

When a camera has more pixels, image parameters change. These are computed for the 5-megapixel format and its special optical and size requirements.

SHADOW LIFT. Series of actions that bring dark shadow areas up to greater brightness without crushing highlights. A wide range of variations allows you to brighten, contrast and lift portions of the shadow areas of an image in many different ways. Each creates its own named snapshot, so you can perform a number of these actions in series from the same original and compare them in the History palette.

ADVANCED ISO REDUCTION. Higher ISO images show grain among the small details. These actions seek to reduce grain and color noise from high ISO images while retaining virtually all fine-scale color detail. They are designed as a subtle noise reduction about equivalent to the difference between ISO 200 and ISO 100.

The iDeDigitize series gives the camera image some of the characteristics of film in the highlight areas at the expense of some fine line detail.

iShadowLiftXtreme, before\after, above brings out much of the dark detail. iShadowLift2TasteB on the left helps rescue images from dim museum lighting.

iNovaFX Shadow & Highlight Treatments (iShadowLifts.atn, iDeNoiseHiISO3.atn) — 17 Actions

The actions are:	*Practical effect:*
iShadowLifts.atn	
iShadowLift1~5	Dual zone lighting lift. Shadow areas lighten & highlight areas don't. Three strengths.
iShadowLift2TasteA	Dual zone lighting lift. Tunable control variation A.
iShadowLift2TasteB	Dual zone lighting lift. Tunable control variation B. Reaches higher tonal ranges.
iShadowLiftXtreme	Major improvement to shadows but maintains subtle, honest look. Tunable.
iDeNoiseHiISO3.atn:*	
iSORemover1	Advanced color/grain reduction. Peels off approximately 1 stop of ISO grain/noise.
iNR -series (A, B, C, C+).	Noise reduction with strong maintenance of fine detail.
iNR -series (B+Flare).	Noise reduction plus spectral highlight treatment (subtle).
iDeDigitize1-3	Treats highlights to feel more like film detail. Caution: eats bright fine lines.

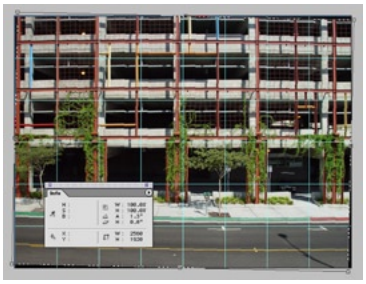
*Does not lift exposure, just lowers grain and noise.

LAST ACTION HEROICS

As noted in Chapter 5, How Do I..., a special set of actions assist when shooting panoramic images with an exact 50% overlap in three segments with the F707/717. To shoot this way and use these actions, you must be very precise in how you gather the images to begin with. A tripod is required and all shots must be made straight out from the axis of the pan. Any vertical tilt will create major headaches, and all three segments must be horizontal. The actions here are for full frame, fully wide zoom images only. (You can shoot panoramics with vertical tilt and four or more segments at any zoom setting you desire, but you won't be able to use these actions with those efforts.)

The result intended with these actions is a linear perspective, super wide angle image. The widest setting on your camera is equal to a 38mm lens on a 35mm camera and covers about 48° horizontally. The result of this iPano707 Action set is to produce an image about equal (horizontally) to an 18mm wide angle lens on a 35mm camera.

Only four actions are here:



IPANOGRID&ROTATE. Often, getting perfect level—even on a still camera tripod—can be problematic. This action creates a light cyan grid of 320 pixel squares that overlay your image. If the grid does not show immediately, you can switch it on in Photoshop's menu, *View > Show > Grid*. The handy keystroke is Command-' for Macintosh and Ctrl-' in Windows.

The action also selects the image in *Rotate Transform* mode so you can spin the image around inside the frame until you see that it is appropriately level. Human eyes are good at making things level, especially when a nearby reference (the grid) is available. By rotating the image within the frame, barrel distortion reduction can follow without problems of proportion. Once one image is successfully leveled, you should use the exact same rotation for the other two.

IPANOIBCWIDEZ. This is a fast-running, non-menu version of the iBCWideZ Action also found in the iBC707.atn folder. It only does one thing; eliminates barrel distortion from images shot at full wide zoom on the DSC-F707/717.

IPANOIBC+07WIDECONV. This is a fast-running, non-menu version of the iPanoiBC+07 WideConv Action found in the iBC707.atn folder. It only does one thing; eliminates barrel distortion from images shot using the Sony VCL-MHG07A Wide Converter optic at full wide zoom on the DSC-F707/717. It is provided here for convenience for the day in which you will decide to try an Ultra Wide panoramic. Results from such shots are about equal to a 14mm lens on a 35mm camera. That is so wide it defines the word *extreme*. This makes *hyper-wide* images of nearly 140°.

IPANOPROCESS. Orchestrating the overlay and stitching process, this action requires you to open your images in Left, Center, Right order. You can open all three segments at the same time, but as you click on them to multi-gather them as a group of files, follow the L/C/R order. If that's not consistent on your computer, then open them one at a time in that order from within Photoshop. The iPanoProcess action will create a large work space of 8000 x 3500 pixels, then it will move each of the individual segment files into place (roughly) and turn the outer ones 50% transparent.

iPanoProcess will stop for you to make center-of-edge alignments of side segment detail with their counterpart detail on the underlying Center Segment. Then rough distortions are added to straighten out the side segments while inviting you to make corrections as appropriate.

Once the sides are in good shape, the iPanoProcess Action will create a large soft eraser brush, switch the side segments to 100% opaque and invite you to erase the inner edges, thus blending Left and Right Segments to the Center Segment. Following this, a snapshot is made of the image, preserving layers, just in case you wish to return to make any final adjustments. The segments are then flattened to one layer and you are invited to adjust a crop frame for the final image.

iPanoProcess will help you start to create an Ultra Wide image, but you will need to intervene and make much more radical adjustments. First, you will need to adjust the work space frame to 10,000 x 6,000 pixels. Then the initial side segment distortions will need to be expanded using Photoshop's *Transform Perspective* and *Transform Scale* tools alternately as you stretch the sides out. Good luck.

Notes On Actions:

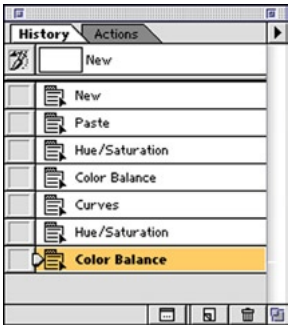
These Photoshop Actions were developed during the course of my work in the graphic and photographic arts. The ones here work with Photoshop 6.0x and 7.0. If your version of Photoshop is 5.5 or earlier, they simply won't run. Photoshop's internal "engines" were overhauled for PS 6 so more recently developed actions rare not compatible with older Photoshops. Perhaps it's time to upgrade?

LOADING ACTIONS: At the right you see the menu that drops down from the triangle on the Actions Palette (arrow). Click *Load Actions*. Like loading anything from within a program, you may have to hunt for the action files, but when you find them, they load quickly. Once in Photoshop, they save with the program when you *Quit*. You only need to load them once. If you alter an Action's settings and *Quit*, the change is kept. To reset the action to original performance, you must reload it. Action files with the same name can co-exist in the list. Avoid confusion; rename yours.

ACTIONS DON'T RUN SMOOTHLY: One of the basic settings in the Actions palette is *Playback Options*. *Step by Step* shows you each and every step during the running of an action. Don't use it! It will slow you down with frustration. Select *Accelerated* before attempting to run the iNovaFX Actions. *Step by Step* should NOT be on.

STOP OR CONTINUE: Within many actions, dialog boxes appear at certain times. These guide you through operations or inform you of specific conditions that are present either before, during, or after the action has been run. Often you have the option to *Stop* or *Continue*. In general, stopping an action quits at the current state while continuing completes the action's effect and causes it to "clean up after itself" by purging the History file of all the intermediate stages of its execution.

ⓘ Note that the *Stop* command has a graphic of a dotted box to its left in the list view of the Actions Palette. If this graphic is toggled off—and clicking the similar icon at the head of each action or collection of actions will do this as well—the action will run, but the desired stop won't happen, and you will not encounter the option it represents. *For some actions this is fatal*. Trash groups that don't work. Reload them from the CD. If the name of the action or action folder is adjacent to a *gray* icon, that's just as bad. Reload.



BUTTON MODE: After you load the actions you need, you can select *Button* mode. Now each individual action shows up as a button. Clicking it starts it on its journey. In this mode you can't accidentally modify an action or its *Stop* icons, and actions are no longer organized into folders.

THE HISTORY FILE: The *History* palette is like a string of graphic *Undo*'s laid out by activity over time. A number of options exist for this palette, too, and it is possible to turn the *History* feature down to a minimum of one *Undo*-able state. While this saves memory, it interferes with the operation of many iNovaFX actions. If you are experiencing difficulty with an action, a *History* state of 20 or more steps may help. See the Photoshop documentation for more about the *History* file and how to get the most out of it.

MEMORY PURGES: The *History* file and intermediate computations build up invisible temporary files that consume disk space and memory in your computer. Photoshop has a control that purges the *History* or all memorized stages of all open documents on demand. The reason you don't want to *Purge* everything is to allow graceful recovery of earlier steps should something go terribly wrong. As humans, we make more mistakes than we wish to admit, and Photoshop is just looking out for us. But as memory is consumed, operations can run out of operating room and things can come to a grinding halt. The *Edit* > *Purge* > *Histories* command is issued by nearly all iNovaFX actions as they complete operations. None of them purge the historic steps of other open files.

SPECIAL CONDITIONS: Some actions warn you of special conditions they need to operate right at the beginning of their run. You might have to stack images in a special order or have only the image in question open on your computer for them to execute correctly, for instance. If you haven't set the image up correctly, click *Stop*, fix the setup, and start over from the top.

ACTION FAQS: All of the actions in this collection work correctly on their development machines and have been tested for compatibility on Windows and Macintosh machines with Photoshop 6 & 7, but no warranty or guarantee is claimed about their suitability to your images or your version of Photoshop or your hardware configuration. If any action shows an error message, check the www.digitalsecrets.net/SonyZone/inovafx.html page for information on updates, new functions, and modifications to actions.

ⓘ New actions are being added all the time. The undocumented *iHandyChanges.atn* is an example. Some late additions are already in the action folder on this CD. Instructions are on the Web and this very eBook is the code book that gives you access to "owners-only" downloads should they become available in the future. That will be explained on the Web site when (if) it is needed.

APPENDIX
RESOURCES, LINKS, SUPPLIERS, FUN, TOOLS

AN EBOOK IS NOT CAST IN SHEETS OF FIBER THAT SIT ON YOUR SHELF AND NEVER CHANGE. LINKS AND RESOURCES HERE ARE IN CONSTANT TRANSITION. WHAT WORKS TODAY MAY NOT, TOMORROW. AT LEAST YOUR EXPERIENCE CAN START WITH THESE...

By purchasing or receiving this eBook as a gift, you have a three-part experience in your hands. The eBook itself, the software included on the CD, and the connection to the wider idea of what's current, interesting, and new via the Internet.

Go to this page right away and bookmark it; **http://www.itssony.com/**. It will give you access to the wider question of what's new this instant.

SUPPLIERS

You would think that a digital camera with its lack of need for film was just about complete in every way right out of the box. But these Sony cameras are system cameras, conceived from the beginning to be the anchors for add-on lenses, filters, tripods, cases, unique accessories, computers, printers, printing supplies, books, and all the other peripheral resources that surround film photography.

While no list of these things will ever be complete, this list of suppliers will get you started on your journey beyond these pages.

All internet addresses are active links. If your browser is open, they will jump you to the destination. Click the URL.

CAMERA EQUIPMENT / FACTORY ACCESSORIES

Accessories-Sony direct . . . . . http://www.sonystyle.com/home/dept.jsp?hierc=9682&deptid=9682

National Presences

Sony Canada . . . . . http://www.sony.ca/sonyca/home.shtml
Sony Australia . . . . . http://www.sony.com.au/
Sony UK . . . . . http://www.sony.co.uk/
Sony Europe . . . . . http://www.sony-europe.com/
Sony Sweden . . . . . http://www.sony.se/
Sony Germany . . . . . http://www.sony.de/
Sony Austria . . . . . http://www.sony.at/
Sony Schweiz (Switzerland) . . . . . http://www.sony.ch/
Sony France . . . . . http://www.sony.fr/
Sony Czech Republic . . . . . http://www.sony.cz/
Sony Espania (Spain) . . . . . http://www.sony.es/
Sony Italy . . . . . http://www.sony.it/
Sony South Africa . . . . . http://www.sony.co.za/
Sony Japan . . . . . http://www.sony.co.jp/
Sony Hong Kong . . . . . http://www.sony.com.hk/

Sony History . . . . . http://www.sony.net/Fun/SH/
Sony World Links . . . . . http://www.world.sony.com/
Sony Mall On-Line Store . . . . . http://www.sonystyle.com/

THIRD-PARTY ACCESSORIES

Lenses

Wide Angle VCL-MHG07A (0.7X) . . . . . http://www.sonystyle.com/home/item.jsp?hierc=9682&itemid=13007

Lens Hood LSF-H58 . . . . . http://www.sonystyle.com/home/item.jsp?hierc=9688&itemid=13003

Telephoto

Olympus TCON-14 (1.45X) . . . . . https://emporium.olympus.com/innards/empProdDetails.asp?sku=200692

Lens Cap 58mm . . . . . various (about $6.00) get two

Cases

Sony LCS-VA3 and others . . . . . http://www.sonystyle.com/home/item.jsp?hierc=9682&itemid=13010

Tenba . . . . . http://www.tenba.com/camera.htm

Targus . . . . . http://www.targus.com/

Tamrac . . . . . http://www.tamrac.com/g_digitalseries.htm

External Monitor Viewing enhancements

Hoodman . . . . . http://www.hoodmanusa.com

Remote

Sony RM-DR1 . . . . . http://www.sonystyle.com/home/item.jsp?hierc=9688&itemid=13006

. . . . . various / camera stores, etc.

Modificaton to Sony remote

Do it yourself . . . . . http://home.attbi.com/~gkowen/remote.html

Filters 58mm

IR stack (2 NDs + IR) (highly recommended) http://www.2filter.com

Mounting Hardware

Telescope . . . . . http://www.scopetronics.com/digitalcam.htm#sony

Microscope . . . . . http://www.martinmicroscope.com/Digital&Video.htm

Panoramic

Kaidan . . . . . http://www.kaidan.com

Manfroto . . . . . http://www.manfrotto.com

Underwater Case

Ikelite . . . . . http://www.ikelite.com/web_pages/sony_f707.html

Ewa Marine (Model U-A) . . . . . http://www.ewamarine.com/English/e-start-photo.htm

Tripods

Q-Pod (highly recommended) . . . . . http://www.ckcpower.com

Standard . . . . . Various photographic suppliers

Computers

Macintosh (highly recommended) . . . . . http://www.apple.com

Windows . . . . . Various suppliers

Monitor Alignment Software . . . . . http://www.thelawlers.com/essays.html#anchor289319

Review of Monaco EZ color . . . . . http://www.quiknet.com/~frcn/EZcolor.html

Batteries

Sony NP-FM50 . . . . . http://www.sonystyle.com/home/item.jsp?hierc=9682&itemid=427

Lenmar equivalent “NoMEM” . . . . . http://www.lenmar.com/details.asp?model=DLSM50

Chargers

Single M cell BC-VM50 . . . . . http://www.sonystyle.com/home/item.jsp?itemid=3820

Dual M cell AC-SQ950D . . . . . http://www.sonystyle.com/home/item.jsp?itemid=25737

Lenmar MSC1 fast charger . . . . . http://www.lenmar.com/details.asp?model=MSC1

Cleaning Supplies

LensPen (highly recommended) . . . . . http://www.lenspen.com

General Sony Compact Digital Camera Information

707 . . . . . http://www.dpreview.com/reviews/sonydscf707/

717 . . . . . http://www.dpreview.com/articles/sonydscf717/

. . . . . http://www.dpreview.com/reviews/sonydscf717/

Memory

Memory Stick Suppliers

Sandisk (highly recommended) . . . . . http://www.sandisk.com/consumer/memorystick.asp

Lexar (highly recommended) . . . . . http://www.lexarmedia.com/digfilm/index_ms.html

Portable storage suppliers

Minds @Work Digital Wallet . . . . . http://www.mindsatwork.net/productsdigitalwallet.htm

NixVue Vista . . . . . http://www.jobodigital.com/products/vista.htm

Slave Flash Units (small)

Quantaray MS-1 (highly recommended) . . . . . http://www.ritzcamera.com

Cobra FlashMate (very inexpensive) . . . . . http://www.ckcpower.com

Flash Brackets

Various suppliers . . . . . various

Home-made Equipment

Outside the Lines . . . . . http://www.outsidethelines.com/MakeHW.html

Printers

Epson . . . . . http://www.epson.com

2200P inkjet pigment printer (highly recommended)

Many models 8.5 inch wide and 13-inch wide versions

PCMCIA-card direct printing (highly recommended

HP Ink jet printers (highly recommended) . . . . . http://www.hp.com

PCMCIA-card direct printers

Exceptionally photographic results

Canon (highly recommended) . . . . . http://www.canon.com

9000 printer

Lexmark (high value) . . . . . http://www.lexmark.com

Ink jet printers

Printing Paper

Red River (highly recommended) . . . . . http://www.redriverpaper.com

Pictorico Papers . . . . . http://www.pictorico.com

Software [Note: All software mentioned here is for both Mac and Windows]

Viewers/Browsers

- Adobe Acrobat™ Reader http://www.adobe.com/products/acrobat/readstep2.html
- Panoramic Manipulation Tools . . . . . http://www.fh-furtwangen.de/~dersch/
- Panavue . . . . . http://www.panavue.com/index.htm
- Photovista . . . . . http://www.mgisoft.com
- SceneWorx . . . . . http://www.vrtoolbox.com
- Quicktime VR Authoring . . . . . http://www.apple.com/quicktime/qtvr/authoringstudio/

Editing Software

- Adobe Photoshop (THE world standard) . . . . . http://www.adobe.com/products/photoshop/main.html
- Studio Artist (Mac only) . . . . . http://www.synthetik.com
- Digital Darkroom . . . . . http://www.microfrontier.com/products/digital_darkroom10/index.html

Photographic Prints via Internet

- Ofoto (highly recommended) . . . . . http://www.ofoto.com
- Shutterfly . . . . . http://www.shutterfly.com
- DotPhoto . . . . . http://www.dotphoto.com
- Spector (Belgium, Austria, So. Africa)(highly recommended) . http://www.spector.be
- FotoFun (Belgium) . . . . . http://www.fotofun.be/
- AgfaNet (Europe) . . . . . http://www.agfanet.com/en/

Large Photographic Prints (they do small ones too)

- 11 x 14 up to 20 x 30 EZ Prints (highly recommended) . . . . . http://www.ezprints.com

Slides from Digital Files

- Data . . . . . http://www.agfanet.com/en/
- Integrated Imaging . . . . . http://www.integratedphoto.com/slides.htm
- Flash-Back . . . . . http://www.flash-back.com/pptsfo.htm

Digital Camera Web Sites / Books

- Digital Photography Review √√√√√ . . . . . http://www.dpreview.com
- Steve's Digicams √√√√√ . . . . . http://www.steves-digicams.com
- Imaging Resource √√√√√ . . . . . http://www.imaging-resource.com
- Lonestar Digital √√√ . . . . . http://www.lonestardigital.com
- Digital Camera Resource √√√ . . . . . http://www.dcresource.com
- Digital Photography Now √√√ . . . . . http://www.dp-now.com/
- Thom Hogan (eBooks, too) . . . . . http://www.bythom.com/
- Short Courses (eBooks, too) . . . . . http://www.shortcourses.com
- Digital Photo Corner . . . . . http://www.dpcorner.com
- Baron Sekiya . . . . . http://www.mediabaron.net
- Belgium Digital (in English) . . . . . http://www.belgiumdigital.com
- Megapixel (English/French) . . . . . http://www.megapixel.net
- Digital Secrets (extremely highly recommended IMHO) . . . . http://www.digitalsecrets.net

FUN LINKS

Must-See Photographers

- Hiroshi Kamakura . . . . . http://www.zonezero.com/exposiciones/fotografos/hiroshik/default.html
- Misha Gordin . . . . . http://bsimple.com/newcrowd.htm
- Taki Bibelas . . . . . http://www.takibibelas.com
- Aeternus . . . . . http://www.aeternus.com/foyer.html

Infrared Techniques . . . . . http://www.atsf.co.uk/ilight/index.html
. . . . . http://tedfelix.com/IR/

- IR modified 707s http://www.maxmax.com/aXRaySonyDSC-F707.htm

Panorama Tools Tutorial . . . . . http://vr.albury.net.au/~kathyw/PanoTools/tutorials/

Astronomy Tips and Techniques http://members.tripod.com/KLComer/Astro001.htm

Color Profiles . . . . . http://www.ddisoftware.com/prism/

Test Strip Demo Download . . . . . http://www.vividdetails.com/Download.html

Digital Journalists . . . . . http://digitaljournalist.org/feature.html

Epson Ink-jet Prints Up Close . . . . . http://www.tssphoto.com/sp/dg/news/dot_comp.html

Sony Digital Camera Discussion Forum . . . . . http://www.dpreview.com/forums/forum.asp?forum=1009

Can't find it? I didn't include it? I missed it?

Best Search Engine on the Web . . . . . http://www.google.com

Once again, the Internet Site that extends this eBook experience
Digital Secrets . . . . . http://www.digitalsecrets.net

Be sure to check the Breaking News page for special announcements. New iNovaFX Photoshop Actions appear from time to time. The Accessories Page is always being updated. Bookmark it in your Web browser.

PROBLEMS/RECOVERIES

Occasionally the camera may get dumb, make a strange sound, seems to take too long, or becomes somehow "unwise." It's rare, but it can happen. Why? Because it is a new sort of beast: a computer that thinks it's a camera.

Upon power-up, the camera starts its internal booting in the same way that a computer that has crashed re-awakens. It starts from scratch. Since everything it needs to know on start-up is in either firmware or hard-wired memory (ROM), startup is quick.

The Reset button near the Memory Stick will often clear its mind of lost perspective. It will return the entire camera to its original conditions and supposedly all will be well.

If problems don't go away after several Resets, the camera is due for a visit to the doctors back at the Sony ER.

WEATHER AND MOUTHS

The camera will withstand a number of minutes of drizzle, but not rain, hurricanes, tornados, gales, sandstorms or young children or the mouths of dogs and camels. A wise 707/717 owner carries the camera with a shoulder strap that keeps it out of harms way under a coat. Not always handy advice in August, or if you are in Australia or South Africa, in February.

DUST AND SCRATCHES

Under the front element of the Zeiss Zoom lens you can see the moving elements change position as the zoom setting is operated. In rare instances, a mote of dust can appear *behind* this glass. The chances are great that it will *not* affect your images, even when the aperture is closed down to the absolute minimum, but it can be worrisome.

Before you ship it off to Sony for a de-dusting, try to dislodge it. It will probably be stuck in place by static electricity. Static electricity may be exacerbated by the actions of lens tissues or cloths on the outer surface of the front element and that may be what is keeping the mote in place. Commercial anti-static sprays are no help, they'll merely coat the lens with undesirable residue or get into the camera. Remember, never spray anything onto the camera. Not sneezes, not lens cleaner—nothing. Any cleaning fluids should be applied to a cloth before getting anywhere near the camera.

In the days of LP records, a number of handy anti-static devices were sold. One product that may help was marketed under the Zerostat brand. It looks like a small pistol and generates a field of ions from its "muzzle." Overuse can inversely charge surfaces, so if you try one of these, go lightly. The static from one won't hurt your camera or its Memory Stick, but use it cautiously. It also tends to neutralize a CD that has picked up static cling.

Scratches on the front element are a genuine problem. They'll never go away, and since the lens can't be changed, Sony Repair is your only option. The best fix is to never scratch that surface. That means cleaning it and protecting it but not cleaning every little speck. Remove blowable items with a puffer or air spray, but don't get the liquid air spray stuff on the lens.

While the LensPen (See Chapter 9) and lint-free cloth are your friend in this regard, the use of a UV filter cannot be ignored. It's simply inexpensive insurance for optical trauma as long as you don't expect to be shooting with any of the IR or Laser hologram modes. I don't use one, but I clean the front element about once every six weeks with the LensPen. Between cleanings, I keep the lens hood on it all the time and that prevents virtually all finger opportunities and most dust from ever reaching the glass.

DROPPING THE CAMERA

The metal body of these cameras is rugged. The swivel is rugged. Still, they get dropped and people have damaged or broken them. The swivel will probably never fail, but the very front of the 707 is not as rugged as one might wish. Repeated banging of the lens mount area will shear internal pins. It is possible for the entirue front ring to separate from the camera and the focus ring could fall off. I'm banged my camera all over the world and done damage to that area, myself. Sony repair is what is needed.If a physical hard knock dents the case, the chances are greatly increased that the inner mechanisms may have suffered damage. Immediately check the camera for these things:

Zoom function. Does it hang or encounter slow areas throughout the zoom?

Focus accuracy. Does the wide open lens, as seen via Aperture Priority, not focus where it used to? Use the digital zoom function to check at full telephoto and test the camera with full-size images.

Swivel smoothness. Is there a new friction spot in the swivel's twist?

Aperture action. Can see the aperture change in Manual mode by peering into the lens from the front of the camera as you rotate the Jog dial in iris mode? You can also see the effect on the monitor as a high brightness, relatively blank subject is observed while changing aperture.

Shutter action. Probably not affected since the shutter is 95% electronic. But if the exposures are no longer correct, the mechanical parts of the shutter may be involved in some sort of malfunction. Very high speed shutter settings should be checked.

Electronic Viewfinder. Does it function exactly as you remember before the "trauma?"

Flash. Does the camera flash behave normally? Are the exposures what you would expect from prior experience?

Auto Rec mode. Since the Auto mode is fully coordinated, it may reveal problems that the other modes may not.

Erratic behavior. Is the camera failing to easily perform a function such as changing modes, pressing certain buttons, achieving focus lock, writing to the Memory Stick, etc.?

Control malfunction. Does one particular control fail to operate as expected? A switch, button or rotating wheel can sprout irregularities. Does the Mode dial always work correctly? The Jog dial?

New sounds. Experience will tell you if the camera doesn't sound quite right.

Reset. If the camera seems to have problems, try fresh batteries or even a complete system Reset. The reset button is inside the battery door as an indented button. A pen point or paper clip will do the job.

If all is well, your camera will have earned a Purple Heart and you can continue shooting in confidence. This is the most likely scenario. Professional cameras collect knocks all the time and Sony has spent much effort to make these cameras rugged, durable, and reliable, but they can be destroyed or crippled by traumatic events. Fortunately, they are modular, and Sony's repair facility is generally a less-than two week turn. If the camera receives a hard blow, make sure the repair people understand this. Forcing them to play "guess the disease" is a good way to have your camera away from home for an extended hospital stay.

If you have not attached, and more importantly, if you don't use, a wrist strap, shoulder strap or finger ring (my personal favorite), then the moment of anxiety you will experience when you drop the camera will have been well earned. It may never have an air-bag, but at least you can install a seat belt.

And if you are using this camera professionally, make sure it is on your insurance policy. Ask your agent for a "floater"policy on the entire kit you take with you. The policies get attractively priced at about a $1000US, or equivalent, deductable basis.

INCLUDED ITEMS

INOVAFX PHOTOSHOP ACTIONS

New actions appear with this version. Some for specific use with the 707/717 cameras, others that work more generally with all digital images. All are written for Photoshop 6.x at the minimum. None will work with earlier Photoshop versions.

PRACTICE IMAGES

On the CD you will find a folder full of practice images called *Practice/DemoImages*. These include several of the shots found in the book and include images referred to in the text that are used for certain examples. The Las Vegas Venetian Tower image and several sky shots are available for you to practice matting techniques with, for instance.

A very underexposed image is here, too, for you to practice high-ISO recovery techniques with.

CURVES

For Photoshop's Curves function only, these are saved curves that do a lot for something so simple. A Digital Secrets Web page provides a tutorial in their use.

MODEL RELEASES

Included on the CD is a folder of Model Releases. In it you will find PDF and EPS files labeled ModelRelease2000.0 M and ModelRelease2000.1 F. The first with the M at the end is written to the neutral gender standard of the "assumed male" pronoun context, so every reference back to the photographer is expressed as "his" or "he". Fine for guys, and probably wouldn't even cause a question in the minds of most. But what if that isn't your personal gender? Ladies, look at the second one, ModelRelease2000.1F. That second one is for female photographers and its pronouns (her, she) are amended to be appropriate. You can print these out and trim them to fit in the CD package.

The best way of sealing the bargain is to give the model a minimum monetary payment. In the US, one of the new gold dollar coins is a good idea. It becomes an inexpensive souvenir to the model. As you hand it over, let the model know that, "This is your lucky day," and that coin will become a lucky coin.

TEST CHARTS

The iNovaFX color white balance filters on the package are included as a file which will allow you to print out the image on matte paper, if you wish. A printed version can also be folded and tucked away in a camera case.

Try to resist printing them out for all your digital photographer friends. They took a lot of effort to make. Suggest that your friends buy their own copy of this eBook, please.

You will note that your printer won't exactly match the cover version. Different paper, different inks, different printer—not too surprising, when you think about it. Still, they'll work quite well. You may wish to experiment before using the filters for critical images.

SHOOTING FOR EFFECT

The booklet inside the CD case explains how to shoot for iNovaFX filter use.

DIGITAL VISIONS: A GALLERY OF CYBER-SHOT PHOTOGRAPHY

Here are images from half a dozen photographers who have embraced the digital medium for its strengths and abilities. There is genuine art here along with examples from many different mindsets. Your mindset will vary, and thank goodness for that.

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About the author

Peter iNova has led a checkered existence. He started out thinking he would be a graphic artist but somebody handed him a camera, precipitating the understanding that he could now draw a picture in 1/60th of a second. With early experiences in video and film photography, the course was set. After many years as a producer and director of moving media for television commercials, business theater and entertainment attractions in exotic presentation formats for places like Universal Studios, National Geographic, Hallmark and NASA, he re-embraced photography in its new digital form.

His digital photography eBooks are the result of that reconnection.

He lives in California with his five wives (page 8-6) and light-intercepting cat (above).

Shooting For Effect

Or The Fine Art of Planning to FX it Later.

A Guide to Anticipating iNovaFX Action Results

Usually we spend our photographic moments catching things that we observe, thinking that if the result is fairly close to what we saw, we've pretty much done our job.

But every once in a while we see something in literally a new light—the light of possibility rather than fact. Now the thing in front of our lens is destined to become something new, later—in the digital darkroom when the clock is ticking slower and our brain is consumed with that conspiratorial feeling of sneaky creativity.

At moments like these the thing in front of the lens has become only an element of the result. The rest of it exists as a vague vision that will be completed through some other means. Like a filter.

Let the record show that by "filter" I'm describing the intervention of something—a process or device—through which the image must pass before completion.

The iNovaFX actions are an example of where this is headed.

When you know that the image will be re-interpreted as an oil painting, you don't capture the original shot in quite the same way.

This guide will help you plan your darkroom technique before the shutter is pressed.

By Peter iNova

Previsualization

As you practice with the special effects techniques of any digital photo editing program, you will begin to realize the greater potentials of the technique. A whisper in the back of your head will suggest that if you had been shooting with this technique in mind to begin with, your editing session might have been able to achieve more, because you would have been able to previsualize the results of the whole process. Perhaps you would have changed something as you shot the picture. Aha!

When Minor White and Ansel Adams, both photographic heros of the last century, were dreaming up the Zone System, an exposure & development & printing system of controlling tonalities in prints, they were using the previsualized final result as the driver of the steps that led up to it. Previsualization naturally led to discrete technical steps.

Now you can apply a certain amount of previsualization to the results you seek to achieve in your digital images. To do this, you need three things: experience in achieving the target result, an appreciation of the unique factors that lead to the best expression of that result and the ability to orchestrate small to large changes in the original shot in order to prepare it for the final effect.

Experience

The iNovaFX actions are like filters that give you immediate fixed results. They can be applied to any image with varying degrees of success. What makes them work with some images but not with others? Experience will guide you to finding this out on a visceral level. It won't happen over night or with the press of a button.

In a way, the iNovaFX action is a fixed previsualization. It always responds the same way, so it can serve as a target to aim for with the original shot.

Unique Factors

Beneath each action are the ways it interacts with an image to achieve its particular results. The tones it chooses to work with, the color, the contrast range—all cause it

to behave in a particular way. And the behavior of each action is not tied to others. While one can run more than one action on an image, the order in which they are run is critical to the results achieved. Just like the order of chemicals in a wet darkroom.

Shooting Adjustments

When you know that a particular action works best with low contrast subjects, you will need to either gather a lower contrast original or perform a contrast reducing operation before running the action. Similarly, lighting, angle of view or time of day may dictate how the best original exposure should be gathered.

Camera Tools

Your tools at the moment of exposure are few. The only things you can control in the camera (for instance) are iris, shutter speed, color balance, monochrome and ISO sensitivity. Well, that's certainly not chicken feed, but you may have to adjust lighting by adding some camera flash to an outdoor or back-lit shot, or you might have to change your choice of background by achieving a different shooting position relative to your subject.

Pre-Action Edits

Assuming that you have gotten everything right in the camera, and that these limits of manipulation have been optimized as much as possible, or more likely, practical, the next steps happen once the image is in the computer. You may wish to try the action or technique on the image right away just to see how the image behaves with it. Chances are great that it will need more preparation, but now you'll have an idea of how much.

Controls in the computer parallel those on your camera. Levels, Curves, Hue and Saturation, Color Balance and all the image manipulators can be used to prepare the image for the next stage. Keep in mind that the objective here is not to make a good-looking image at every step , but an image that will pass through the final action and *then* look good. It is not uncommon to create an intermediate step image that looks like a photographic mistake.

In Photoshop the History file will allow you access to the last number of steps you have performed. Setting this control to 30 operations or more will help.

Keep in mind, though, that most iNovaFX actions clean up after themselves by throwing out the accumulated steps in the History file and produce an unambiguously titled Snapshot, in case you need to start from an intermediate step.

The Moment of Truth

With everything totally optimized for action processing, the act of running the action may come as an anti-climax. Often it will be the least time-consuming part of the edit, but it is the Moment of Truth in the process.

Friends and relatives looking over your shoulder may ooh and aah, but you will know what everybody in the field of special effects knows; all is preparation. Play it for what it's worth. This last step could get you a raise.

Guidelines

What follows are particular details to watch for as you shoot for specific actions. These are guidelines, not bronzed rules. Feel free to bend and break them when necessary, especially when you can predict the consequences.

Barrel Correction and Chromatic Aberration Repair

Since these are geometry modifying operations, they need to be done first, before other processes. If there is a priority of sequence among them, it would favor doing the Chromatic Aberration corrections, **iCrAb actions**, first since the few pixels of image size they produce do not adversely affect the barrel distortion corrections made with the **iBC actions**.

Color Tinting

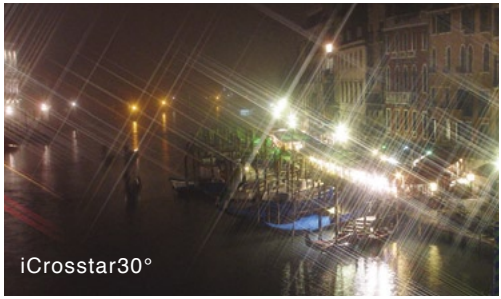
Color correction filtration with the **iCC action series** isn't something you plan for usually, being a road to recovery from errors. Each of the **iCC actions** cause a very specific color trend over the entire image, because they're working hard to rescue you from a wide ranging color error.

On a correct-looking image they produce these effects:

iCCSunnyShotIncan . . . . . Extreme warm effect, super golden hour.
iCCIncanShotSunny . . . . . Cold, sci-fi looking images. Day for night

Correct images can be attacked by other actions as well. The **iAerial2Taste actions**

will warm, add contrast and harshen normal images in a tunable way. Building up warmth or coolness with every click, the **iCFWarmer/Cooler actions** can color correct symmetrically. Two clicks warm, plus three clicks cool, equals one click cool.



Physical Filter Simulation

Shots with specular highlights can take advantage of the **iCrosstar series**. Keep in mind that only the top 1% highlights will "throw" a cross star effect, so lights at night or at dusk will definitely do the job. With care, and perhaps 1/3-stop of underexposure, you can get high-key glints to do the effect in broad daylight. These also give you tunable control.

For skies you wish you could selectively darken, the **iSkyGradFilter series** creates the next-best thing. Here are grad filters added after the shot was made. Variations create color and density differences.

Comic Relief

For a page that reads like a comic strip, shoot 16 images that tell a story in some logical sequence, then open them in order in Photoshop and run the **iMulti16 action** and stand back. All 16 become one high resolution printable image.

Push Processing

As noted in the eBook, the EV+/– controls in combination with maximum ISO will permit the camera to meter accurately to ISO [maximum+2] stops. You can go farther underexposed (or faster in shutter speed where needed) in Full Manual exposure mode, but how do you fix such a mangled exposure?

As ISO climbs, the camera loses the ability to portray smooth contrast. High ISO with low contrast subjects makes for better recovery with the **iSOFix actions**, and

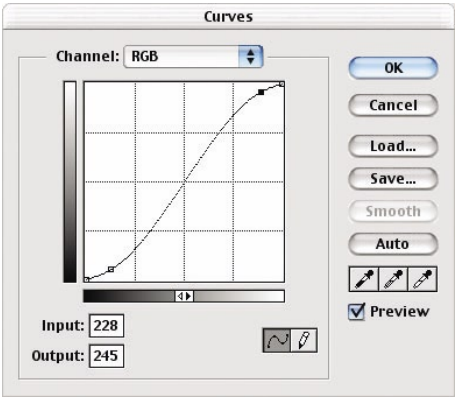
the **iSO2Taste** action will probably be your main choice.

Glare Flare

Enhancing glare effects with the **iGF actions** means that you need some glare to start with. Shooting contrasty, glossy, glare-filled surfaces is one way to accentuate the brightest highlights making them good candidates for the action.

Aerial Image Recovery

When shooting for the **iAerial2Taste actions**, you will want to set the camera white balance to Sunny as you shoot from an airplane window. Expect images that are extremely low contrast and quite bluish. Remember to leave a little atmosphere in the final image. It will help people see that it's an aerial image.



Dynamic Range Extension

Since this **iDR-series action** technique depends on three images shot at EV –2, 0 and +2, (or -1, 0, +1 EV) the real challenge comes after the images have been combined. Adjusting the Curve control in Photoshop to achieve a more contrasty "S" shape (above) will help many extended range processed images. Details in the text.

Special Effects

Each of the Photoshop plug-in filters, **iPS-series**, will have its own requirements. Test the ones you wish to use on a variety of shots—contrasty, flat, colorful, dull—until you gain a feeling for the specific qualities that best feed the action. Then control the shot to fit these qualities.

Color to Black and White

When you know that your color image is destined for B&W results, you can use color filters on the camera in the same way you would use them with B&W film. Red filters reduce blemishes in light skinned portrait subjects while deepening blue skies and vegetation. Green filters lighten vegetation and add contrast to light skin tones. Blue filters wash out skies, leave plants alone and darken light skin tones.

In real life, photographically speaking, a deep color filter will see objects of its own

color as white and objects of other colors as progressively darker.

The **iBWColorGel action** (a preset for the Photoshop Channel Mixer) works only on color images but can be manipulated to produce an effect like a colored glass or gel filter over the camera lens. Its three values in red, green and blue are initially +34 each. As long as these three values add up to about 100, the "exposure" will remain constant, but you can completely subtract a color—reduce green to 0, for instance—and compensate with a boost from the "Constant" control, or lift both red and blue by +17 each. Negative color values are experimentation territory.

Original Dimroom Effects

These complex actions give artistic results. In general, the **iLumiBloom** act like fog filters and the **iLumiBloom3** attacks only highlights.

The iBloomArt actions produce stylized artistic/photographic effects that appear to combine line art and airbrushed color. Contrasty objects will take on a "sketch" quality but colors will remain artistically accurate. It "sharpens" unfocused images.

iBWFleshtona emulates a popular B&W print technique seen in advertising and illustrative photography. To get the best results from this action adjust target tones (often flesh tones) to occupy the gray values from 50% to 70%. Use the Curves control to lift these tones to Output #150. The final step is tunable.

Complex Art Effects

The **iComplexArtFX folder** is a collection of tools and painting-like art actions. The effects produce a trade-off of detail in exchange for emotion.

iAngledStrokes produces a basic paint effect and detail is lost. **iAngledStrokesPainting** makes a bolder effect and needs very bold features in the original subject because it is quite impressionistic.

The **iCanvasPainting series** almost smells like oil paint. They all have the same painterly look, and **iCanvasPainting3** has more stroke effects in lighter areas. All lose detail, so portraits shot close tend to work best.

When a watercolor painting effect is desired, the **iWaterColorPainting series** will produce jaw-dropping results. Watercolors are supposed to have a less-detailed, more artistic appearance. For complete expression, print it on real artist's heavy watercolor paper if your printer can handle the thicker stock.

A very abstracted pencil effect can be obtained with the **iPencilSketch action** on objects that have low detail. The texture of this effect works well with inanimate objects better than it does with people pictures.

Polarizing Filter Emulator

Polarizing filters can bring deeper tones to the parts of blue skies 90° from the sun. The **iPolarizeSky action series** simulates this on a range of blue sky images by locking onto the sky color and deepening its tonalities. Several variations bring control.

Extreme Recovery

The **iRetNar- set (iFXx)** mimics a NASA patented filter idea called Retinex. It can bring some "lost" or low contrast images back from the brink and may help cut through haze, fog or smoke.

Grain-Free Images

Lock the camera down and trigger it remotely. Now you can gather several images of non-moving subjects "in-register." Open these together, and use the **iFrameAvg action series** to combine them into a single image that cancels the grain from shot to shot. Versions exist for 3, 4, 5 and 6 frames. Some frames may not register due to camera or subject movement. If you need six shots in the final, shoot ten to begin with. Stack frames as layers before running the chosen action.

Super Sharp

The **iSharp series** attempts to bring high sharpness with lowered artifacts to images shot with less than full in-camera sharpening. Adjust camera sharpness downward and shoot originals in Fine compression so the action will avoid sharpening JPEG artifacts along with the subject.

Borders and Frames

Almost any image will look good in a custom frame, but you can plan shots that will look good with the added graphic elements one might reasonably find in a stamp (the image of perforations). The **iStampBorders** series of actions gives you three sizes of perforations transforming your image into three different scales of stamp images. (Forging government postage stamps is NOT a good idea.)

In a similar vein, the **iFilmBorders** create the look of cut sheet 4 x 5s, 2-1/4 x 2-1/4 roll and 35mm 3:2 aspect film frames each having the typical eight sprocket holes. Guaranteed to blur the line between film and digital.

Enjoy the iNovaFX actions and play with them. I believe that some of the most valuable, experience-building time you can spend in digital photography is playtime. That's when mistakes become fun and can lead to new discoveries.

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Digital Visions II: A Gallery of Cyber-shot Photography

Tonality, color, detail. A Gallery that may inspire you to reach beyond the lens.

Vision. The sense that leaps across space, time, and emotion carried on the briefest of phenomena, immeasurably lighter than a whisper, yet forceful enough to prey on our imagination well past the day and into our dreams.

As we watch the world knowing that it is posing for us moment to moment, we may stop to remember it in ways that eyes cannot. Then pass the memory on to another and another until the vision, now shared, becomes a familiar part of our collective dream.

Beyond the object in our hands, a genie sleeps, ready to grant us photographic wishes. And when the light is right, poetry...

Sony Cyber-shot DSC-F707. F/2.2 @ 2.5 sec.

World Trade Center, Edwin and Stephanie Martinez

March 30, 2002. Bitter cold and strong wind do not discourage the Martinez' wish to gather the World Trade Center memorial display from the New Jersey shore. Edwin worked on Wall Street. This is his neighborhood.

Notes and observations by Peter iNova

Peter iNova ...expecting the unexpected

Images

I've been framed! Or composed. Or captured in the middle of a moment.

Images have a wonderful way of forcing our vision into delineated observations, as if the world in the image was all there is to see.

"In reality, images are choices that cause the viewer to see things the way the photographer wanted them to be seen."

Sony Cyber-shot DSC-F707—all.

iNova...

Body language speaks volumes.

"I never get tired of seeing how they take pride in their work, or their pets, or take themselves so seriously. All seen in the way they stand or sit or move about.

"Some part of their personality that no words could capture can be appreciated only in their form.

"They are all on a mission of life that is tremendously engaging to watch and share through observation."

—Peter iNova

Aaron Perry ...applying experience

Sony Cyber-shot DSC-F707.

Boston at Night

What eyes don't see directly can be anticipated with experience.

A night scene caught the eye of Boston software engineer Aaron Perry. Previous shots from his roof guided him to take this 2-second exposure with mixed night city light.

He knew that the street lighting would not look white, the way it does to one's eye, and the fast moving clouds seemed to drag the light off the top of the buildings.

"Night photography can be very rewarding, and I'm constantly amazed at how the F707 can find color in such minimal light."

—Aaron Perry

Lisa Young ...anticipation

Sony Cyber-shot DSC-F707. Made monochrome in Photoshop.

Snowfall Rays

Artist Lisa Young was walking in Boulder, Colorado's Chautauqua Park in the late morning after a snow storm the night before.

She noticed the rays of sunshine that appeared in the air when a gust of wind came up and blew snow out of the trees.

"I waited for the next gust of wind with my camera ready when it happened."

—Lisa Young

Ron Hodgson ...orchestrating a result

Sony Cyber-shot DSC-F707.

Liquid Glory

Veteran Ron Hodgson wanted to make a patriotic statement following 9/11.

Using flash and high shutter speed, a small flag and some water, Ron planned this image, even though he didn't know exactly how it would come out.

"I was inspired by a shot of droplets on a window that lensed, repeating images in the drops. I wondered if that could be done by small-scale, moving, splashing water."

—Ron Hodgson

Andrew Pampallis ...matching opportunities

A Thought for Africa

Experienced film photographer and electronic technician Andrew Pampallis had seen these boys rummaging for useful things at a trash site in South Africa and was struck by their expressiveness.

He realized that his digital camera contained a feature that was a direct match to his subject.

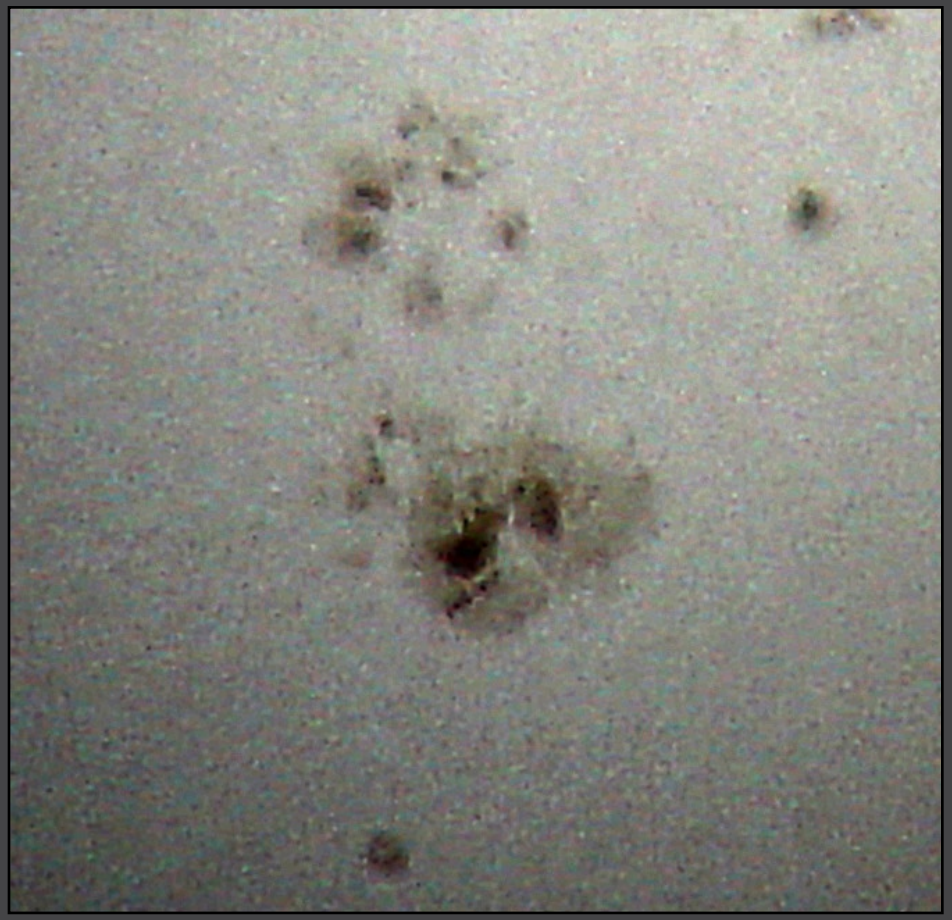
The image was photographed in Sepia mode and is presented without alteration.

"Endless hours spent in by b&w darkroom in my school days took a backseat to studying... With the 707, the passion could not be quelled."

—Andrew Pampallis

Sony DSC-F707. Sepia mode direct.

Joe Jones ...Sun, Moon and beyond



Sony DSC-F707 + Astro-Physics 155 EDF f/7 telescope + Baader solar filter.

Sun Spots, Copernicus Crater

Beyond earth are sights one has to work hard to appreciate. Lawyer Joe Jones has adapted his F707 to a 6" telescope and patiently brought back scenes from the rest of the Universe. Involved in astronomy for over 25 years, he moved his home away from light-polluted city skies to continue is interest.

Joe Jones...

The Great Nebula in Orion
Comet Ikeya-Zhang
Jupiter and Moon Shadows

With a special mount to adapt his camera to the telescope, Joe reaches into the sky for images our eyes would never catch.

The telescope tracks the heavens through the long 30-second exposures.

It takes special equipment and a great deal of experience to collect images like this.

"Use the Sony remote release, and never point your telescope at the sun without the proper filter!"

—Joe Jones

Sony DSC-F707 through a Astro-Physics 155 EDF f/7 refractor telescope adapted with a ScopeTronics MaxView 40mm eyepiece.

Jeff Dykes ...stalking ants

Sony DSC-F707 in Macro mode.

Ant Antics

In Australia, the ants are large. And quick. Steel worker and digital photographer Jeff Dykes studied them for a half an hour noticing that every once in a while they stopped to chat for a few seconds. Opportunity knocked hard.

With the camera in full auto plus Macro mode, the subjects lined up.

"Every spare moment I get I am out there looking at the world through my camera lens and enjoying it."

—Jeff Dykes

Scott Dommin ...control

Sony Cyber-shot DSC-F707.

Cheshire Pond

The perfect light, the perfect color, the perfect mist... Why won't that bird stop staring at me?

Air Traffic Controller Scott Dommin had everything right but the bird wouldn't cooperate.

Well, it's a digital image, so he controlled it. Using Corel Photopaint 9, he grafted the head from an earlier frame of the bird onto this one to make the shot complete.

"Photography gives me a chance to relax, and a reason to get out in the fresh air on my days off."

—Scott Dommin

Amy Walters ...the beamer

Madison's Smile

By day, Amy Walters cracks the whip on Unix as an Information Systems Supervisor, and her interest in technology led her to digital photography.

Her niece, Madison, is a camera ham always instantly ready with a crowd-pleasing smile.

A good match.

Amy used the Sony HVL-F1000 flash in bounce mode while Madison did her thing.

"I love how the bounced flash gives a natural glow to the shot without harsh shadows."

—Amy Walters

Sony Cyber-shot DSC-F707 with HVL-F1000 flash unit bounced off ceiling.

Shay Stephens ...night vista

Sony Cyber-shot DSC-F707.

Unveiled Moon

Photographer Shay Stephens has made many striking night shots with his DCS-F707 but not every night is camera-ready in Seattle.

View more of his work at *www.shaystephens.com/portfolio*

"This photo almost didn't happen, the weather was rather poor, the clouds heavy and imposing. I went to a new location hoping to catch the moon rising over Seattle, when it looked like that was not going to happen, I began shooting scenic shots instead, just as my battery power and camera memory was running dry the clouds just started to break a little."

—Shay Stephens

Michael Chiu ...splash

Strawberry Splash

This took planning.

A fish tank was filled with 20 gallons of clear fresh water in front of a white background.

Experiments were performed to find the right lighting.

In the end, bouncing the HVL-F1000 flash off the ceiling did the job.

"The prefocus was done with one hand in the middle of the tank, then the strawberries were dropped and the shutter was fully depressed."

—Michael Chiu

Sony Cyber-shot DSC-F707 with HVL-F1000 flash unit bounced off ceiling.

Pablo Lopez ...splash, too

Sony Cyber-shot DSC-F707.

Whales Jumping

Sea World in San Antonio, Texas is a guaranteed crowd-pleaser.

(Orcas don't read, but they apparently understand parentheses.)

Mechanical Engineer and photographer Pablo Lopez calculated exactly the right place to cover the action without being drenched.

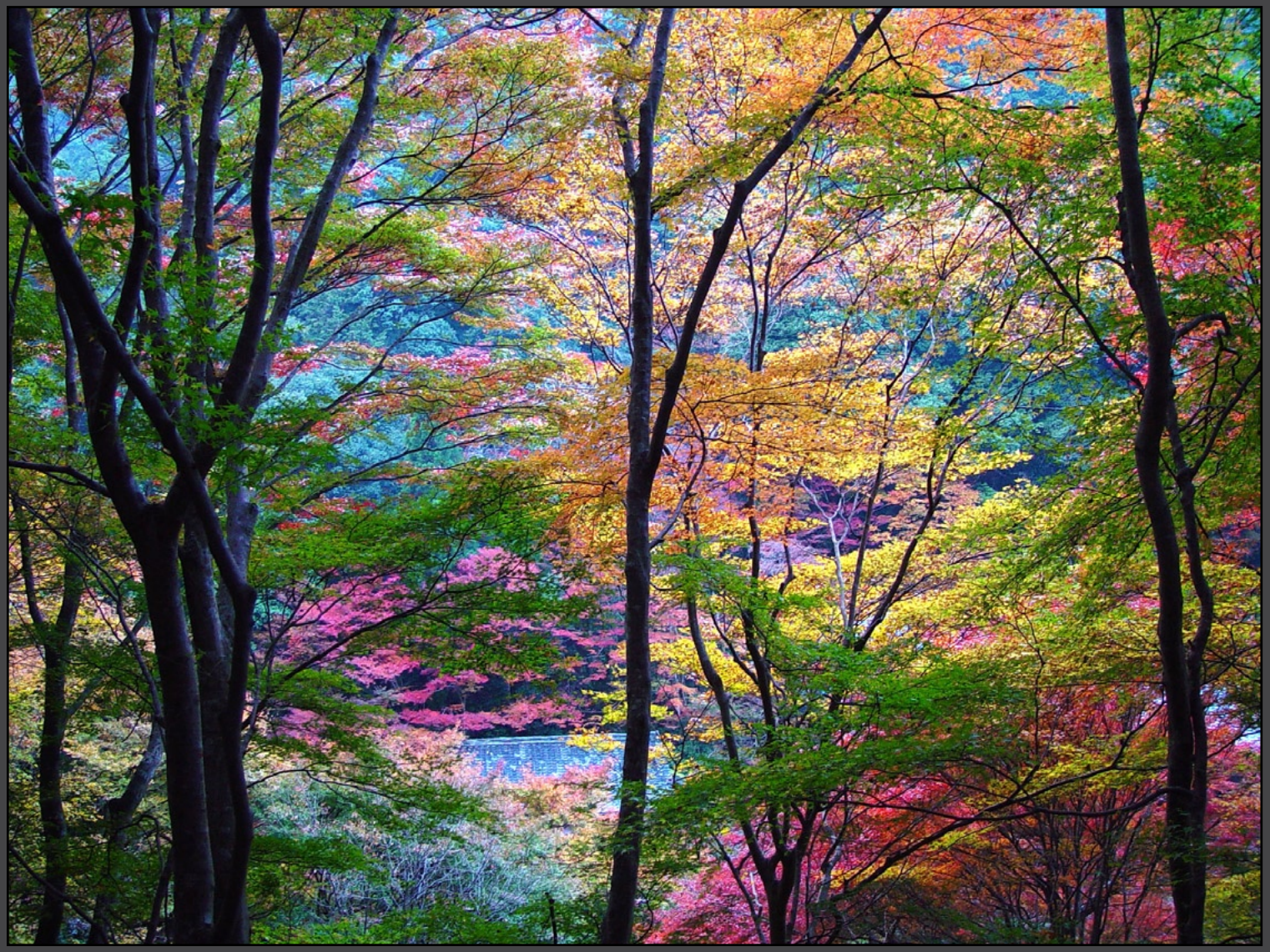
See those folks sitting close to the performance tank? Not too dry there.

Pablo caught the moment with just the right timing.

"Photography is my hobby, I enjoy taking pictures wherever I go."

—Pablo Lopez

Katherine Chan ...colors



Gate to Fall Mountain

Kyoto, Japan delights the eye from many angles but Katherine Chan found magic late in a November day.

"I was attracted by the amazing foliage colors but the trunks along the road blocked a lot of views of the colors in the valley.

"Finally I found this gate-like arrangement and took the shot. Since it was pretty dark in the mountain and I didn't have tripod, the original image came out a bit dark. So I adjusted the level a bit to brighten up the colorful foliage in Photoshop."

—Katherine Chan

Paul Pelletier ...air power

Thunderbirds

When the Air Force Tunderbirds precision flying team roars by, every camera at the air show sits up and takes notice.

But something was missing from the original image due to the cloud-free blue sky. Fortunately, photographer Paul Pelletier grabbed a cloud image before the planes took off... just in case.

Later, in Photoshop Elements, he combined the two images adding motion blur to the cloud shot.

"The sky was clearing and I wanted something other than a pure blue background to be able to give a sense of speed. They were traveling at 300 to 400 mph according to the announcer."

—Paul Pelletier

Digital Visions?

No single gallery can show the complete range of image possibilities a particular camera can achieve.

Digital photography is in a stage of rapid technological development yet it already brings a wealth of abilities into our grasp.

Perhaps the most striking aspect to these Digital Visions is that they are not particularly digital at all. They just happened to have been recorded that way in the camera and enhanced that way in the computer.

But Visions they are. And your images should be here, too.

As you master your own senses of image, design, timing, composition, color, tonality, and artistry you will experience the same type of joy and satisfaction these photographers have felt as they created the images seen here.

Creative moments may catch you by surprise or touch you every day, but they always give you something extra, a smile.